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THE NATURE AND PATHOLOGY OF MYOCLONUS-EPILEPSY.[1]

WITH REPORT OF CASES,

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INTRODUCTION.

Myoclonus,[2] first described by Friedreich in 1881, is still a rare affection. It is now generally admitted to be an independent symptom-complex although frequently confounded with the myoclonic contractions of hysteria, of chronic and degenerative or Huntington's chorea, of electric chorea or Henoch-Bergeron's disease.

Our knowledge of the pathological seat of essential myoclonus, while still defective, is tending more and more to place it in the cerebral cortex, where most other chronic convulsive disorders are being located. We have no doubt that even the milder types of essential myoclonus, when studied in the light of more recent and definite histological changes of the cortex

[1] The general text is by Dr. Clark and the microscopical work by Dr. Prout; both authors are jointly responsible for the section on pathology and pathogenesis.

[2] We have limited ourselves in this article to an exposition of the symptoms and pathology of the association-disease only. Those desirous of a complete knowledge of the symptom-complex of myoclonus are referred to the voluminous literature already existent on this interesting subject.

from cases of myoclonus-epilepsy (the most marked and fatal form of the myoclonus), will disclose its pathogenesis to be in those cortical elements of the third or pyramidal layer and will show that the lesions belong to that form of cell degeneration which is so uniformly present in the second layer cells of the epileptic brain. If such findings prove true in a large number of cases of essential myoclonus, the disease must be classed as an affection, similar in pathogenesis and course with that of epilepsy; or in other words that there exists a soil of degenerative predisposition upon which is engrafted an autotoxic excitant.

The fruition of this end is already in evidence. For some time essential myoclonus, as well as myoclonus-epilepsy, has been classed by many able neurologists (although viewed only from a clinical standpoint), as essentially a form of epilepsy, an incomplete convulsion in which the motor element is present only—a *petit mal moteur* (Dide, Rabot). If such a pathogenesis is to be established for myoclonus-epilepsy, it is of the greatest moment for us to study carefully the association-disease in all its bearings, as the affection appears to mark the individual as hopelessly myoclonic. The status myoclonus in such cases frequently terminates life and is therefore as valuable for the study of the myoclonus as is fatal status epilepticus for that of essential epilepsy.

Historical Sketch of the Association-disease. While essential myoclonus is a rare affection, not more than a few hundred cases being reported in the literature, there are only 57 cases of myoclonus-epilepsy in evidence, including four instances of our own. The cases reported by different authors appear in the following table, in the order of publication.

TABLE SHOWING RECORDED CASES OF MYOCLONUS-EPILEPSY ARRANGED IN CHRONOLOGICAL ORDER.

1887	Homen	1	
1891	Unverricht	5	(1st series, familial type).
1894	Koshewnikow	4	
1895	Unverricht	3	(2d series, familial type).
1895	Seppille	3	(familial type).
1895	Nagel	1	
1896	Lugaro	1	
1896	Bresler	3	(2 of familial type).

1896	Krewer	1	
1897	D'Alloco	3	(familial type).
1898	Garnier and Santenoise	1	
1899	Lundborg	14	(familial type).
1899	Rabot	6	
1899	Clark	1	(familial type).
1900	Verga and Gonzales	3	(familial type).
1900	Murri	1	
1900	Mannini	1	
1901	Schupfer	2	(familial type).
1901	Clark and Prout	3	(1 of familial type).
	Total	57	

It is interesting to note that the first description of myoclonus-epilepsy is found incorporated in a novel, published in Paris before 1873, the date of the American copyright. The description is as fairly accurate of this affection,[3] as was that of

[3] The scene of this novel by Emile Gaboriau, entitled "In Peril of his Life," was laid in June, 1871. The villain was an illegitimate son of a feeble-minded mother, who herself possessed many mental and physical stigmata of degeneration. The son, whose name was Cocoleu, was a feeble-minded myoclonus-epileptic and also possessed multiple stigmata of degeneration. After a life of vagabondage, at 18 he committed arson and homicidal assault without adequate provocation. Yet with quite characteristic modern justice this irresponsible degenerate was sentenced to imprisonment with hard labor for life. However fictitious the character may have been in the author's mind, he must surely have seen a case of the disease, as he gives data quite sufficient upon which to form a clinical picture of myoclonus-epilepsy. This fact is especially interesting, inasmuch as the description antedates Friedreich's first report on essential myoclonus by at least 8 years and appeared 20 years before Unverricht's description of the association-disease in 1891. Some of the passages of the translated novel especially bearing upon the affection are as follows: "He was an idiot and a person more or less defective mentally and physically, besides being subject to a terrible nervous affection which *at times shook the whole body and disfigured the face by the violence of uncontrollable convulsions*. He was not a deaf mute, but he could only stammer out with intense difficulty a few disjointed syllables. Sometimes the country people would say to him: 'Tell us your name, and you shall have a sou.' Then it took him five minutes' hard work to utter amid a thousand painful contractions the name of his mother 'Co-co-co-lette.'" . . . . "It was well that the court used kind words, for Cocoleu was thoroughly terrified by the brutal treatment and was *trembling violently in all his limbs*." . . . "Did Cocoleu follow him? His distorted features betrayed nothing going on within him." . . . "Big drops of perspiration

the "Alexandrine phenomena" cited by Féré from a novel of M. Goncourt and the embodiment of infantile cerebral palsy in a hanging in the Louvre bearing the title "Le Pied-bot," by Ribera, 1588-1656.

Although Prichard in 1832 first described a species of muscular shocks occurring in epilepsy, which he regarded as spinal in origin, a careful consideration of his description fails to show that he had in mind anything more than the motor aura or incomplete cortical discharges sometimes seen before and after the grand mal attacks of classic epilepsy, and which by many have been described as motor equivalents. The observation of similar attacks is common in the experience of most epileptologists. Delasiauve especially has described similar phenomena in his classic work on epilepsy (1858).

A description of similar phenomena by Herpin, in 1852, seems also to allude to the motor aura reported by Prichard and Delasiauve. Many writers believe that Herpin was the first author to describe myoclonus-epilepsy. He did not do this specifically, but he may have done so indirectly in his general description of the interparoxysmal motor disorders in epilepsy.

In describing general convulsive tremors in 1867, Hammond cites a case that must have been an instance of myoclonus-epilepsy. The patient had periods of general tremor lasting for hours without loss of consciousness; finally attacks attended by loss of consciousness occurred which Hammond designated as "fainting," but which must have been epileptic attacks preceded

rolled slowly down his temples and *nervous shocks agitated his limbs and convulsed his features.*" (myoclonus) . . . . "But the efforts which the unfortunate man had made during the last hour had exhausted his little strength. He broke into stupid laughter; and almost instantly one of his *fearful nervous attacks overcame him; he fell with a scream and had to be carried away.*" (epilepsy).

Reviewing the case: There were free periods when "he sat for hours lifeless and dejected"; the myoclonic movements preceded the epileptic fits and grew more intense until grand mal epileptic seizures occurred. It is interesting to add that an "insanity expert" from Paris reported: "That man is simply the most complete idiot I have ever seen in my life." As no mention in the expert examination was made of any muscular contractions whatever, it presumably took place on one of the individual's "good days" when the contractions were absent.

by myoclonic contractions. The movements resembled those of chorea except that there were "long periods of quiescence." Certain epileptic attacks described by Hughlings Jackson may have been myoclonic-epileptic in character, although much more probably they were incomplete or imperfect cortical discharges constituting motor auræ or, when seizures failed to follow them, formed epileptic motor equivalents, such as have been very recently described carefully by Anton Deltil. In equally indefinite terms similar phenomena are referred to by Pierre and Weiss. Voisin speaks of peculiar symptoms in an idiotic epileptic child, which probably refer to some form of tic, a disorder which, however closely it may resemble myoclonus, in its real pathogenesis, can be easily differentiated from it.

Russell Reynolds has stated that 75 per cent of all epileptics have some sort of interparoxysmal motor disorder. Although in the minds of most observers the percentage is much exaggerated, it shows the possibility of mistaking such interparoxysmal disorders of motility for different forms of convulsive tic, chorea and pathological tremor. Nevertheless, tendencies of this sort are not to be entirely discouraged, as their trend is to prove epilepsy to be a symptom-complex of cortical degeneration with continuous morbid manifestations even in the interparoxysmal periods. It will also aid in finding a common pathological basis for many chronic convulsive affections in general. It is signally noteworthy that Ziehen and Rause believe that all spasmodic neuroses, not attended by loss of consciousness, are essentially myoclonic, while Raymond admits they all spring from a common soil of degeneration.

However this may be, it is now generally recognized that myoclonus-epilepsy received its first careful description by Unverricht in 1891, who called it family myoclonus, several, although not all members of the family, being affected. Since this real beginning of our knowledge of myoclonus-epilepsy, 57 instances, including our own have been reported. Probably many cases of this affection have escaped diagnosis in this country, as no instances of myoclonus-epilepsy have been reported in the English language aside from our own,[4] although

[4] Even in 1894, when Koshewnikow, at a meeting of the Society of Neuropathologists and Alienists at Moscow, reported four cases of

many are now on record in German, Italian and French literature. Myoclonus has recently been found associated with general paresis and certain other cortical lesions (Muratow and Hermann). No doubt many of the anomalies of essential myoclonus are due not only to the wide variability to which all cortical diseases are subject, but also to the fact that the condition is complicated by many of the lesser forms of pathological tremor, convulsive tic and spasmodic neurosis from which latter affection myoclonus is not easily separated, its clinical expression being less exactly defined. As the affection becomes better known clinically and pathologically, we may expect to obtain reports of myoclonic contractions in many gross cerebral disorders as well as in many infective fevers. Even now an extreme subsultus tendinum in certain fevers is thought to be an inexact substitution for myoclonus. Without viewing the matter in too radical a light it would appear that myoclonus-like contractions might readily occur in individuals with an hereditary instability of the motor cortex, as a result of the effect of the toxins of infectious diseases. However, it is with myoclonus as with epilepsy, the stage of its designation as a symptom without a definite pathological lesion has passed, and while still doing yeoman service as a symptom of other affections it must eventually win a recognized position as a clinical and pathological entity among the cortical lesions of degeneration. The dawn of the end already presents itself.

Etiology. The predisposing causes of essential myoclonus loom large in the field of family degeneracy; its percentage of hereditary predisposition is equal to that of essential epilepsy, the most degenerative form of all the so-called neuroses. It is frequently a family disease although usually one or more members escape. It may appear in several generations either as a direct or as a collateral inheritance, as is shown in Lundborg's "degenerate family" and in one of our own cases in which it

myoclonus-epilepsy under the title of "A Particular Form of Cortical Epilepsy," none of those present, in the discussion following, even referred to myoclonus. It was at least quite evident that they knew nothing of the association-disease which was carefully described by the speaker, as his remarks were thought to refer to motor auræ, degenerative tics and the rhythmic agitative movements of imbeciles.

was proven that myoclonus-epilepsy had appeared in three generations. In Lundborg's cases the myoclonus-epilepsy was associated with many other motor neuroses, such as essential epilepsy, tics, paralysis agitans, etc., and was largely induced by the inter-marriage of degenerates. It is doubtful, even when express statements to the contrary occur, that myoclonus-epilepsy ever appears in an individual coming from a healthy stock. Notwithstanding that Unverricht failed to find a neuropathic taint in both his original series, there appeared to be a rheumatic and tubercular history. All the other reports, except one by Krewer and Seppelli, expressly state or imply the existence of degeneracy.

The forms of degeneracy most frequently found, in their respective order are as follows: Alcoholism, tuberculosis, epilepsy, insanity and chorea. Despite the statements of certain writers, there are several cases on record in which myoclonus-epileptic parents produced myoclonic epileptic children. The disease would, therefore, appear to be directly transmissible. In addition to well marked neurotic degenerative affections, states of general ancestral degeneracy exist, such as tuberculosis, gout, chorea, rheumatism and ill-defined, dissolute and criminal tendencies in the family stock. In the same category with ancestral neuropathy may be placed evidences of collateral family degeneracy, such as the same disease or allied affections in the patient's brothers or sisters. A history of such is even more common than one of ancestral neuropathy. In families consisting of others besides the patient, essential myoclonus, myoclonus-epilepsy, essential epilepsy, various forms of convulsive tic, insanity, imbecility and idiocy are always found. In the families in which the foregoing nervous disorders do not occur we often find evidence of a neuropathic taint in which physical and mental disease are easily induced. In fact, although it occasionally happens that one or more members of the patient's family have been perfectly free from any neurotic taint, this occurrence is rare indeed. As a general rule, chronic convulsive disorders form the great bulk of degenerative entities in both ancestral and collateral stock. Hysteria plays a very small rôle in the family degeneration, there being but few cases in which it exists and then in remote ancestry.

The stigmata of degeneration are present in the majority of instances both in the patient and in the different members of the family. No one form of psychic or somatic stigma takes precedence. As we might expect, they are relatively less frequent and pronounced as the disease is less of the family type and more of the sporadic variety.

The immediate excitant of the disease alleged by the patient or the relatives is usually trivial. It is even of less significance than in essential epilepsy. Evidence of traumatism to the head or other parts of the body or of fright exists in a small percentage of the cases recorded. Such causes as fatigue from overwork, alcoholic debauches, or both, and infectious fevers (especially typhoid and scarlet fever) are occasionally present. Undoubtedly the above excitants are of serious moment only in so far as they may produce a condition in which auto-intoxication may easily occur. This fact is especially true for extreme fright the most frequent of the alleged excitants, and which is popularly supposed to provoke many convulsive disorders, paralysis agitans, chorea, epilepsy, etc. There is no positive evidence that the auto-intoxication originates in the gastro-intestinal tract directly; much more probably it is dependant upon a condition of faulty chemotaxis of the cortical cells, in which the organic anomaly of hereditary predisposition finds its expression, especially involving the small and large pyramids. In short there is a faulty elaboration of the nutritive products which ordinarily should subserve cell life and activity. By this theory may be explained the possible presence of auto-intoxication in many chronic convulsive disorders, when examination of bodily secretions gives negative or contradictory results. However, we must yet receive signal aid from the cytobiologists in perfecting our very inexact knowledge of the anatomy and physiology of the cell before we shall make much further progress in solving such problems. In any case an auto-intoxicant in order to act as the excitant of myoclonus-epilepsy and allied cortical affections needs to be only slight and transient inasmuch as the soil of degeneration is most unusually fertile.

The influence of sex and age in the production of myoclonus-epilepsy shows that men are more frequently affected—in the ratio of 5 to 3 so far as regards the 57 recorded instances. All

the cases developed in early life under the age of 20, except in one individual mentioned in Lundborg's series, whose myoclonus-epilepsy first appeared at 30. In three-fourths it developed between 9 and 15 years, the age of inception being similar to that in essential epilepsy. Although essential myoclonus does not begin quite so early (from 15 to 30) the rule, that the greater the predisposition the earlier the inception of degenerative neuroses, holds true for myoclonus-epilepsy. In the family types the disease usually appears before the 13th year (3 to 11).

Symptomatology. In the development of the association-disease, epilepsy appears first in one-half the cases, by periods ranging from a few weeks to several years. In one-third myoclonus appears first and in the remainder the two diseases have a simultaneous onset. The epileptic attacks are usually nocturnal at first; later they may become diurnal. As a rule the epilepsy continues throughout life, but in a few instances it exists only at the beginning of the disease. In one of Unverricht's cases only two epileptic paroxysms occurred throughout the whole life of the patient; the attacks were classic of grand mal. The seizures are never preceded by a sensory aura,—in fact no aura as such exists at all,—but premonitory signs of increased myoclonic contractions are in evidence in the great majority of all cases, although seizures may not always occur at their climax. Frequently the epileptic attacks are abortive; the tonic stage of the fit being curtailed; tongue biting and post-paroxysmal coma are also absent. The muscles most frequently involved in the epileptic seizures are those most commonly engaged in the myoclonic contractions. No periodicity marks the occurrence of seizures and no myoclonus-epileptic is recorded as dying of the status epilepticus although a sort of status myoclonus frequently hastens death and often actually produces it. Periods of long remission from epileptic paroxyms under proper sedation are of frequent report, under careful management, sometimes months and even years intervening between paroxyms. The patient is less commonly free from myoclonus than epilepsy. In many cases consciousness is only disordered or partially lost, while the mental automatism following epileptic seizures is of uncommon occurrence. Melancholic-mania is

fairly frequent in myoclonus-epilepsy, especially after a prolonged series of "bad days." Mental stigmata of epilepsy are present in all the more intelligent patients.

The myoclonus of the association-disease is often atypical compared even with the varying symptoms of essential myoclonus. While the contractions are usually lightning-like, they may have a fibrillary character involving parts of certain muscles only. In such cases the "live flesh" or tremors develop more or less rapidly in a few weeks or months, into typical myoclonic contractions. Rarely, they may remain fibrillary throughout the life of the patient. A single general tonic contraction may constitute the entire clinical picture, although this is even of rarer occurrence than in essential myoclonus. In myoclonus-epileptics the clonic contractions of myoclonus end imperceptibly in the tonic stage of the epileptic paroxysm. The contractions are often strong and affect large masses of muscles, and as a consequence locomotive effect is common. The trunk is very frequently affected causing the patient while standing to jerk the body antero-posteriorly and laterally with suddenness and violence. The face and distal portions of the extremities are quite frequently involved. As a general rule, both sides of the body are affected alike (the right having the preference), but not usually synchronously and the contractions on the one side may be more frequent and severe than on the other. Usually the myoclonus begins in the muscles of one or both upper extremities and (in a few days or weeks, seldom more than three months) involves the lower extremities, chest, abdomen, neck and face in the order named. The muscles about the eyes and mouth, as a rule, are the last to be affected, although the reverse is sometimes true as in cases reported by Unverricht, Homen and others. The tongue and diaphragm frequently suffer in all severe cases. The implication of the latter produces a characteristic wood-chopper's grunt, bark, cough or "clearing of the throat" as in laryngeal tics. Isolated and combined muscular contractions often give rise to species of tics analogous to the sporadic convulsive varities.

Upon certain days the contractions are milder or severer in character (good days, bad days). It is comparatively rare for myoclonus-epileptics to pass days entirely free from myoclonus,

as occurs in the essential disease; the contractions are also much less paroxysmal in character. As the malady develops the myoclonus becomes more or less persistent during the waking period, causing exhaustion by a myoclonic status which not infrequently terminates in death, as was signally shown in one of our own cases. However, under sedative treatment severe cases of myoclonus-epileptics may enjoy for long periods (months or years) entire remissions from both forms of the disease. Such remissions most frequently occur in essential myoclonus and are often wrongly termed "cures." They form no small part of the statistics upon which certain authors base a favorable prognosis. One of our patients,[5] enjoying for a long period entire freedom from epilepsy and a more or less perfect remission from his myoclonus as a result of bromide treatment, has been able for months to complete crayon sketches in very minute detail and to execute several documents daily without a single exhibition of "summersaults" or "rockets."[6] A withdrawal of the remedy would speedily reduce him to a bedridden invalid as has been demonstrated.

At first patients are able to check the myoclonic contractions by an effort of the will or by calling the antagonistic muscles into play. There are several recorded instances of artisans able to pursue their occupation for months and years after the myoclonus developed, even in the face of an on-coming epilepsy heralded by the increased myoclonic contractions. In the early stages the convulsive movements occur only during voluntary movements, and then appear as exaggerated purposeful acts. Such movements have very frequently been causes of parental discipline in myoclonic children.

The thigh as well as the abdominal muscles, and not infrequently those of the neck and face, are commonly involved in myoclonus of the association-disease, in addition to those of the shoulder, arm, and supinator of the forearm. When the disease becomes thoroughly developed, all voluntary movements are diminished, any or all being executed with more difficulty. The patients often complain of a feeling of lassitude.

[5] Archives of Neurology and Psychopathology, 1900, Vol. 2, Nos. 3 & 4.

[6] The influence of different degrees of sedation is also shown in the ergograms of the same case.

Occasionally this is primary, as in paralysis agitans, where there is incipient hypertonicity of muscles, later expressed in rigidity. Severe cases of myoclonus-epilepsy soon learn to seek a resting place of safety in the sitting or reclining posture. In the worst forms, the general muscular strength suffers a marked diminution and muscular atrophy, or wasting may occur as a consequence of inactivity. As a general rule, both superficial and deep reflexes show considerable hyperexcitability, being particularly marked on the side most involved in the myoclonus. A study of the special senses, sensibility, and electrical changes is always negative. Inasmuch as the face, tongue and diaphragm are more frequently affected in the myoclonus-epileptic, speech disturbances are almost invariably present. Stuttering and stammering between syllables, words and sentences, during which a muscle play of myoclonic spasm occurs, are the more common disorders.

As a general rule, there is a lack of physical and mental development. The poor physique is shown in rachitis, a dwarfed stature and lack of muscular and osseous development. Owing to the difficulty in swallowing, there is general lack of nutrition in the patients. They are anæmic and subject to gastro-intestinal symptoms. Anorexia and diarrhea readily occur and regurgitation of food is common in severe cases. Albuminuria is found occasionally, while indicanuria is often present. However, the significance of the latter finding is doubtful as this substance is frequently absent. It never occurred in any of our cases although repeatedly searched for.

The mental state of myoclonus-epileptics varies from slight mental enfeeblement to a more or less complete imbecility and idiocy. The great majority of these individuals are feeble-minded, often emotional and subject to furious attacks of violence upon slight provocation. Many become insane soon after the onset of the disease, possessing non-systematized delusions. A progressive dementia is often commensurate with its progress. Even in myoclonus-epileptics, classed of normal intelligence, numerous psychical stigmata of degeneration such as neurasthenia, hypochondria, and imperative concepts are almost invariably found. Stigmata of hysteria and the presence of hysterogenic zones have never been reported except in a

doubtful case of D'Allaco's in which the whole head appeared to be a myoclonogenous zone.

Prognosis. The prognosis of the affection, as to recovery, is invariably poor. Longevity is usually curtailed much more than in either essential epilepsy or myoclonus. Amelioration is possible for long periods of time (months or years), but no cures are on record. The patients most frequently die of inanition, pulmonary congestion and a sort of premature senility, which is apparently induced or hastened by persistent malnutrition. Only two of Lundborg's patients reached the climacteric period of the affection (45-50); many die of intercurrent diseases such as tuberculosis, heart and kidney affections, in early adult life. In the few who reach advanced years extreme senility and a progressive dementia occur. Myoclonus-epileptics are often completely sterile, and any children that may be born to them usually die of some intercurrent affection such as infantile eclampsia, general tuberculosis or more frequently tubercular meningitis. This fact no doubt renders a transmission of the same disease infrequent.

Diagnosis. The diagnosis of typical cases is easy. *Errors are generally due to laying too much stress on single symptoms of the disease.* If one holds in mind the widely variant manifestations of the neuroses in general and allows myoclonus-epilepsy the same latitude (as that given to essential epilepsy, for instance), mistakes would be much less frequent. There are family types and sporadic cases, the majority being of the latter variety. The condition may be acute and severe (Cases I and II of our study) or mild and chronic in its course (Cases III and IV). Notwithstanding the many difficulties besetting a diagnosis careful and repeated examinations on different days will generally disclose the true nature of the affection. The differentiation narrows to a decision between it and hystero-epilepsy or grand hysteria; essential epilepsy with pseudomyoclonic contractions or "jerks"; the idio-muscular tremors in epilepsy; the isolated or multiple tics of epilepsy; posthemiplegic choreic movements associated with epilepsy; choreic epilepsy; and myoclonia in general paresis.

Even cases as well marked as those of Unverricht have been regarded as instances of grand hysteria or of essential epilepsy

with the clonic elements prolonged at the expense of the tonic stage (Böttiger). But as a matter of fact, consciousness is always disturbed or lost entirely in epileptic seizures where the clonic convulsions are as severe as reported in Unverricht's myoclonic contractions. Even psychic contagion, so often a factor in the production of hysteria, was eliminated, as Unverricht isolated one girl of the family for several years, yet she developed the disease in spite of this precaution. The occurrence of stigmata of hysteria in any case of myoclonus-epilepsy should cause one to doubt the diagnosis. Loss of consciousness, tongue-biting, irresponsive, dilated pupils and stertor make certain the diagnosis of epilepsy. On the other hand, the presence of short, sharp contractions of the proximal muscles of the extremities and especially those of the trunk, which cannot be reproduced voluntarily is sufficient to make certain the myoclonic nature of the affection. Usually the disease is much modified for a time at least by bromides, an observation that does not hold true for hysterical conditions.

The pseudomyoclonic movements or premonitory "jerks" seen in essential epilepsy are always attended by an impairment or loss of consciousness; they are simple flexure movements and are never multiple; they affect the upper extremities only; are always bilateral and synchronous and consist either in flexion of the forearm or abduction of the entire upper extremity as though the patient were making a sudden violent effort to keep from falling backward. However, atypical cases of premonitory "jerks" are common, and here a differential diagnosis is often extremely difficult. While they do not constitute myoclonus as seen in the association-disease, they are undoubtedly the connecting link between classic epilepsy and myoclonus-epilepsy.

The idiomuscular tremors occasionally seen in epilepsy are rhythmical and not modified by the influence of the will, and moreover are never severe enough to produce locomotive effect, much less to throw the patient to the ground as in myoclonus associated with epilepsy. Many of the cases of idiomuscular tremors are mistaken for the polymorphous chorea of Brissaud. Various tics in epileptics are entirely confined to the face; are not coordinate and usually reproduce voluntary or reflex emo-

tional acts whose general character remains always the same, although much aggravated by the emotions. They are also largely under the dominion of the will. Coprolalia, echolalia, achemesis and "fixed ideas," peculiar to tics are often associated. It is probable, however, that a close association in the pathogenesis of the two affections exists; a difference in the motor neurons involved constitutes the chief distinction.

In choreic paresis and in infantile spasmodic hemiplegia (without palsy), the convulsions begin and involve most frequently parts once paralyzed. The choreiform movements or vibrations of the extremities are rhythmical and confined to one-half of the body. Unilateral atrophy (or rarely, hypertrophy), also occurs.

Moebius, Böttiger and Schultze believe that essential myoclonus is so closely allied to degenerative chorea as to make the differential diagnosis impossible, if not unnecessary, but this opinion is hardly tenable. It is rare indeed to see chorea in any of its forms associated with epilepsy, whereas fully 20 per cent of myoclonics are also epileptics. In one case reported by Althaus, the choreic epilepsy was probably a coincidence only, while the patient recently observed by Bechterew was really a myoclonus-epileptic. In our clinical experience of several thousand epileptics, we have never seen a case of choreic epilepsy and we are convinced that all such cases should be considered instances of myoclonus-epilepsy until proven to the contrary. Choreic movements are well known and easily differentiated from myoclonus; the character and distribution of the former are not often atypical.

The epileptiform convulsions in general paresis are generally hemi- or mono-spasmodic in character, while the somatic and psychical picture is certain to disclose the true nature of the disease. In the few reported cases of myoclonus associated with general paresis, the speech, pupillary signs, progressive paralytic state and rapid dissolution, together with the etiology and mental symptoms, easily establish the paretic nature of the affection. As for the myoclonic contractions themselves they are not essentially different in the two affections. In the Henoch-Bergeron type of chorea the contractions are rhythmical and result in expressive movements, controlled by nerve

pressure and by voluntary effort. It probably has its origin in a specific infection in malarial districts. No disturbance of speech or writing occurs in electric chorea and there is an entire absence of epileptic crises. The evolution of the disease is rapid and always ends in recovery under proper treatment. While many types of cortical diseases of motor cells are probably not to be sharply differentiated from myoclonus-epilepsy, yet the treatment, course, and termination of the latter require a differential diagnosis, not especially difficult to make if the essential character of the myoclonus-epilepsy is remembered.

Treatment. Treatment can be only palliative, but as a general rule long remissions both from the myoclonus and also from the epileptic crises may be obtained. Surgical intervention of all sorts and especially trephining is contraindicated from the nature of the affection; when resorted to its general effect is invariably bad (Rabot).

So far as drug treatment is concerned, the bromides stand in first place. They prove of decided benefit in the majority of all cases. The bromides, however, should be given for long periods of time and in high dosage if necessary (4 to 6 drachms daily). Although the epileptic seizures in myoclonus-epilepsy are usually nocturnal and atypical in character, and therefore less amenable to bromide treatment, a prompt diminution or entire cessation of attacks may be obtained by a daily exhibition of one to two drachms of the drug. In those cases most refractory to the bromides, Toulouse's hypochlorization diet may be advantageously adopted in connection with bromipin (a 10 per cent sol. of bromine in ol. sesami), especially when the latter is used in the form of the nutritive emulsion. Flechsig's opium-bromide has also produced good results (Bresler). While the bromides are more especially directed against the epilepsy, the myoclonus also usually undergoes important modifications; the contractions become less severe, persistent and agitative. However, cases have been reported in which little or no beneficial effect on the myoclonus has resulted from the administration of as much as 280 grains of the bromide salt (Rabot). Clearly such failures form decided exceptions. The bromide salts may be given either alone or combined with chloral in small doses in the evening. This plan is especially to be advised when

the myoclonus is worse, at night, owing to the fatigue and dominant emotional states. Chloral produces a deeper sleep in which disquieting contractions are reduced to a minimum. Chloral given alone has but little power in checking the myoclonic contractions and is practically of no value in diminishing the frequency or severity of epileptic seizures. Alcoholic excesses usually excite a series of myoclonic contractions, yet small amounts of alcohol often markedly diminish the myoclonus for a time. On the other hand, as the narcotic effect of alcohol wears away the contractions are usually more severe and the epileptic attacks become more frequent; consequently the use of this drug to any great extent, even as a temporary makeshift, should be interdicted.

If, as often happens, the myoclonic contractions are most severe in the early morning hours, coffee and a light repast may be given the patient before rising. This plan frequently aborts "bad days." Indeed Lundborg found that copious potions of coffee at any time of the day were efficacious in warding off many series of threatened myoclonic contractions. On the theory of neutralizing the possible toxicity of the blood and producing an alteration of the blood pressure, hypodermoclysis or enteroclysis of normal salt solution is of value whenever increased myoclonus heralds epileptic seizures. Antistreptococcic serum has been used with negative results. Rabot reports the successful use of tetanus antitoxin, in one case 10 cc. of the serum being given at one dose and followed by a daily injection of 5 or 6 cc. The patient was free from any myclonic or epileptic crises for 43 days, at the end of which time three attacks occurred. Before the treatment was given epileptic seizures had occurred every two or three days, while 25 to 30 myoclonic contractions were noted daily.

The general principles of care should really be considered as adjuvants or additions to the medical treatment already laid down. Galvanism which has usually been successful in essential myoclonus is of much less value in myoclonus-epilepsy. When used in conjunction with the bromides, it may still be employed in obstinate cases. The persistent and distressing hiccough is sometimes relieved, at least temporarily, by faradization of the diaphragm.

If the patient is bedridden, massage or systematized passive movements of the limbs give great comfort and aid in the maintenance of good nutrition. Turkish baths have a decidedly soothing effect on most patients and may be employed advantageously.

The diet and general hygiene are usually neglected in the treatment of severe cases of myoclonus-epilepsy. The food should be plain, and simply served; it should be in a very digestible form and given in small quantities, especially when spasms of swallowing are likely to develop. Milk is the ideal diet. Artificial feeding by the nasal tube or rectal enemata may be necessary on "bad days." The rest cure and forced feeding, as for neurasthenics, are often necessary for myoclonus-epileptics on the "good days" to fortify against a threatened starvation on prolonged "bad days."

Patients who are still able to be about should live a non-stimulating existence and engage in open-air industrial pursuits in the country. They should avoid as far as possible all agents that excite myoclonic contractions, such as exposure to cold, vexation, fear, emotional surprises, extreme fatigue, etc. Proper attention to the regulation of the minute details of the life of the myoclonus-epileptic combined with the administration of a sedative bromide treatment usually insures more or less complete freedom from myoclonic crises, epileptic attacks, or both, for several months or years.

Pathology. The problem of the pathogenesis and the pathology of myoclonus-epilepsy resolves itself into three questions: (1) What is the primary seat of the disease? (2) What is the nature of the change in the nerve elements? (3) What is the cause of that change?

It is interesting to note in rapid review some of the hypotheses held by different authors. Unverricht believes the disease is due to excitation of the motor ganglia of the cord,—an hypothesis essentially identical with that held by Friedreich in his original thesis on myoclonus. To account for the association-disease Unverricht assumed an additional implication of the cortical motor ganglia to explain the epileptic phenomena. Later theories have successively ascribed the myoclonic lesion to the medulla, cerebellum, corpus striatum, optic thalamus

and to morbid conditions in the cerebral cortex. Koshewnikow regarded his cases as due to circumscribed encephalitis with termination in sclerosis, meningeal adhesions, etc. Böttiger believes in its cerebral origin because of the epileptic feature and the presence of isolated muscular contractions, as in paresis and various forms of meningitis, known to involve the cortex. Krewer agrees with Minkowski and Grawitz in placing the lesion in the cortex, the process beginning as a cortical irritation and extending by continuity to ganglionic cells which preside over individual muscles. If the disease were of spinal origin we should have trophic changes in the muscles. Murri once found lesions of the Rolandic region in a case of essential myoclonus and believes that the lesion of myoclonus-epilepsy is also cortical. Raymond, Rabot, Garnier and Santenoise, Dide, and Verga and Gonzales all have recently expressed similar opinions as to its cortical origin.

The fact that the myoclonic movements cease during sleep is opposed to the spinal origin of the disease; since the functions of the cord are increased during sleep. Again, if the disease were of spinal origin we should also have trophic changes in the muscles. The frequency with which beginning myoclonus and epilepsy are unilateral, the two sides being always asynchronously involved, argues for the seat of the lesion in those motor elements in which related movements of various parts of one side have more in common than have those for the upper and lower limbs of both sides. The arms too are first and most affected in the majority of cases, a fact which suggests a region in which the more complex movements of the arms are proportionally represented. This view is in consonance with the distribution of convulsions and paralysis of cerebral origin. Myoclonus contractions are often associated with other diseases of cortical origin, such as paresis, meningitis, and attend or follow infectious fevers. Their clonic nature; general absence of marked muscular atrophy and electrical degeneration; and the presence of exaggeration of the reflexes point clearly to a cortical origin. We must look to the cortex for the arrangement and disarrangement of muscle movements.

It has been asked whether the lesion of the cortex is primary or secondary to a lesion situated somewhere else in the cere-

bro-spinal axis, but we have no right to look beyond the cortex either for myoclonic spasms or epileptic convulsions. Even if lesions should be found in the anterior horn cells of the cord, the peripheral nerves or in the muscles themselves, as Popow has contended, the cortical lesions would still be initial, inasmuch as secondary influences from the cerebellum, optic thalamus and corpora striatum are posterior in point of time to disordered discharges from the cortex. Although there is some evidence that the thalamus may give rise to clonic convulsions the lesions sufficient to explain classic epilepsy have never been found there, much less an explanation of the loss of consciousness in grand mal. We must therefore conclude that, whatever be the lesions underlying myoclonus as well as those causing epilepsy, they must be in the brain and most presumably in the cortex, as gross changes sufficient to account for the condition are uniformly absent.

A review of the gross anatomical appearances found after death throw but little light upon the pathology of the affection. There have been seven autopsies made in myoclonus-epilepsy—2 by Bresler; 2 by Verga and Gonzales; 1 by Schupfer; 2 by Clark and Prout. The macroscopical findings may be summarized as follows: In Bresler's first case there existed adhesions between the dura and skull, with evidence of unilateral atrophy; in the frontal region there was an adherent pia, while the cerebral substance appeared normal. In his second case the pia over the Rolandic area was cloudy and there was some flattening of the convolutions, most marked over the occipital lobes. The ventricles were dilated and contained a reddish fluid, but the cerebral substance was firm. In the first case of Verga and Gonzales the autopsy findings were negative, while in the second a basilar tubercular meningitis was found which was of recent origin. In Schupfer's case nothing presented at autopsy but cerebral hyperæmia. In our own cases the gross anatomical lesions were about the same as those noted by Bresler. In none of the above was the cord examined.

To summarize: The pathological anatomy in these few cases shows light meningitis and the accumulation of cell elements about the vessels and cells, with some increase of the interstitial

tissue products often seen in degenerative processes of the brain and meninges—findings that throw but little light upon the real pathogenesis of the disease.

As to the microscopical appearances in the cortex, the literature contains no record. In one case of our own, however, studied in this manner, the characteristic lesion of epilepsy in the second or so-called sensory cell was found. This consists in a destruction of the intranuclear network and its replacement by a granular substance. As a consequence of this change in the cell body abstraction of the nucleolus from the cell occurred easily and frequently in cutting the section. In addition to the epilepsy lesion which we have found and conclusively proven to be present in various forms and conditions of epilepsy,[1] identical cell destruction was found in the large pyramids of the third cortical layer. The large chromatic granules of the Betz or motor cells of the paracentral lobule were quite as much involved as the chromatic substance in the cells of the smaller type. Chromatolysis was extreme over the entire cortex. The general distribution of the lesions was striking; chromatolysis, absence of the nuclear membrane and the presence of granular and swollen nuclei, in every portion of the cortex examined.

It is essential to recognize that in these findings we have the lesion of epilepsy of the second layer cells, plus a maximum intensity of the same form of cell-death in the large pyramidal cells of the third layer. Presumably the latter changes underlie the myoclonic spasm. The two diseases have a common soil of degeneracy, which is expressed in an organic cellular anomaly of the second and third layers of the cortex. This anomaly, constituting the predisposition, manifests itself at the supererogation of an immediate excitant in epilepsy and myoclonus. However, additional evidence of the constancy of the lesion supposed to underlie the myoclonus is very important and necessary. If the primary lesion is in the cerebral cortex and involves the autonomy and life of sensory and motor cells in the same death process, we must infer that the excitant is probably a general toxic or autoxic agent, acting in a uniform manner upon these particular cells. As before pointed out,

[1] See Proceedings of New York Neurological Society, Oct., 1900, for details of histopathological findings in 18 cases of epilepsy.

the soil for the implantation of the association-disease is so remarkably degenerative that the intoxication may be slight and transient only. It will be, therefore, doubly difficult to detect.

In a review of the possible intoxicants one case of simple myoclonus appeared to depend on a state of uric acid diathesis (Ferrero), while Laudamy found essential myoclonus in alcoholics, and Labbe, Grasset and Ambland for chronic morphinism. The uniform absence and presence of indicanuria in certain cases of essential epilepsy and myoclonus and in the association-disease have been reported impartially; therefore the findings are of little value.

Vanlair and Turtschauinow in an endeavor to find the causative intoxicants of essential myoclonus produced myoclonic contractions experimentally in animals by peripheral injections of carbolic acid. They believe that the drug caused an irritation of the sensory cells of the cortex through their peripheral endings; or in other words that myoclonus was a disturbance largely of the sensory-motor reflex. Finally, it is interesting to note that Wagner has observed myoclonic contractions to follow extirpation of the thyroid and has therefore suggested the replacement therapy of thyroidin as the proper treatment of myclonus in general.

In conclusion we may say that the lesion of myoclonus-epilepsy appears to be in the cerebral cortex involving the nucleus and the intranuclear network of cells of both sensory and motor types. Its pathogenesis appears to be an intoxication or autointoxication of these cortical cells, probably brought about by a faulty chemotaxis of these same cells because of an inherent organic anomaly. While each condition maintains its separate morbid entity, the two are closely allied and indeed are often found as indissolubly associated clinically and pathologically as are the motor and sensory functions of the cells they involve.

REPORT OF THREE CASES OF MYOCLONUS-EPILEPSY WITH AUTOPSY FINDINGS IN TWO FATAL CASES.

The three following cases illustrate the wide difference existing between cases of myoclonus-epilepsy: Cases 2 and 3 were both severe and fatal, yet the former occurred in a negro, a race

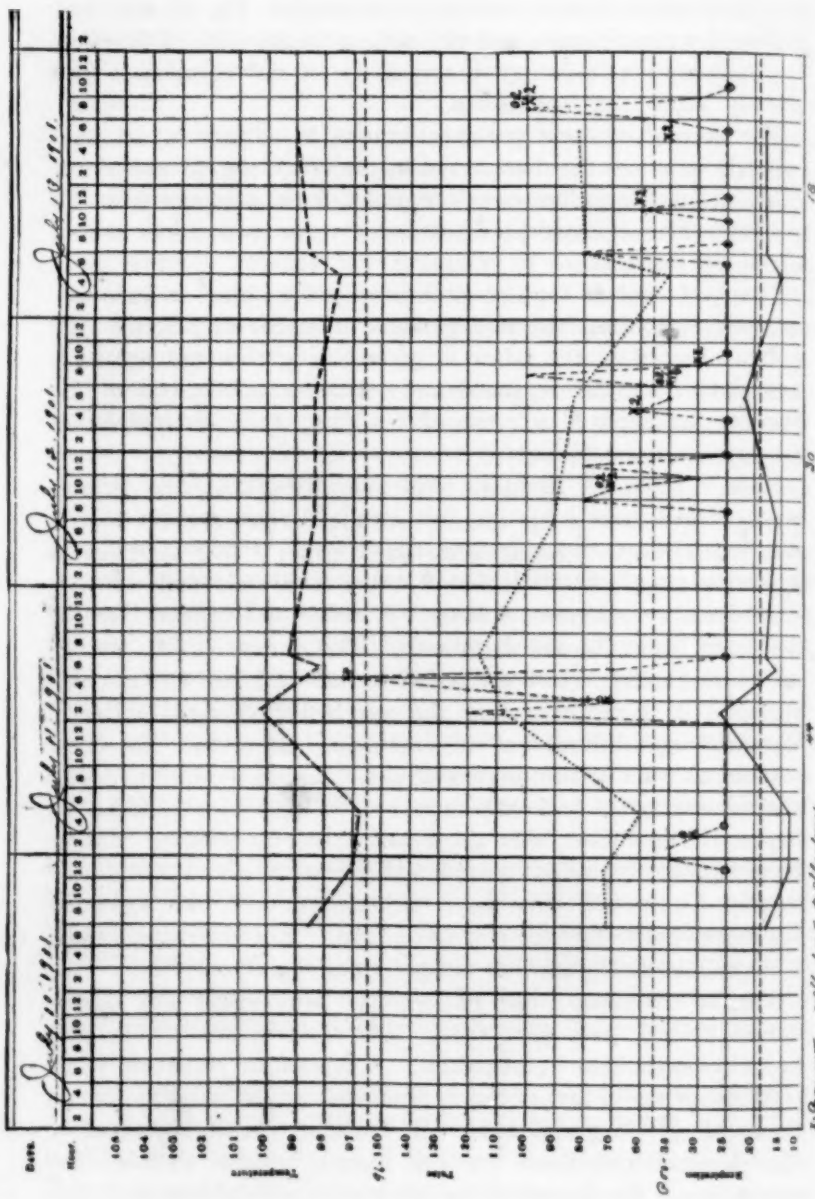
not often affected with convulsive disorders. The disease had existed for twelve years and the patient finally died of tuberculous pneumonia, although the severity of the myoclonus had already made him bed-ridden.

The second of these patients was an hereditary myoclonus-epileptic in whom the disease ran its complete course and terminated in fatal myoclonus in four years, as had occurred in the mother. The microscopical study of these two cases are of signal interest.

The first case is that of a chronic and atypical myoclonus-epileptic, who has had two periods of status myoclonus; the graphic record of the latter is given. Negative and unnecessary data from the repeated and minute examinations of the patients are omitted for the sake of brevity. The details of the cases are as follows:

Case 1. A. V. Female. Age 17. Her maternal grandmother died insane at 43; her mother is at present insane and has always had migraine. Her father "had epilepsy at 23 for a year," he had always been rheumatic and nervous and recently committed suicide. A sister and brother died of unknown brain disease in infancy. The patient is the youngest of the family; was born at full term; the labor was normal, although it is reported that she weighed 17 pounds at birth. Dentition was difficult but no convulsions occurred. She commenced to walk at three years of age. At six the first epileptic seizure was noted and was supposed to have been induced by fright; thirteen days later there was a second seizure. Thereafter attacks, typical of grand mal, occurred about every two weeks. The patient has had myoclonic spasms "ever since she can remember before the epilepsy began." She is feeble-minded; a slight bilateral ptosis has existed since the myoclonus.

Present Condition. The patient has been under our observation for the past 3½ years. The seizures are always preceded by myoclonic contractions. A tabulation of seizures and climactic crises of myoclonus is appended. The seizures remain those of classic grand mal. The muscles usually involved in the clonic contractions are the biceps, triceps, deltoid, and pronators of the forearm; the quadriceps and adductors of the thigh; the pectorales and occasionally the recti abdominales of


Clinical Record. Case I. A. V.

the trunk; the sterno-cleido-mastoid and digastric of the neck and the zygomatici and buccinatores of the face. There is often a bewildering muscle play over the entire body which is difficult to describe. The muscle spasm is short, sharp, lightning-like, arhythmical, asynchronous on the two sides, and implicates most intensely the proximal muscles of all the extremities, more especially the biceps, triceps, deltoid, and pronators of the forearm. As the patient endeavors to control the muscular spasm in standing, the foot is suddenly raised, drawn back, or stamped more or less violently as though she were preparing for a drill in marching, and a diaphragmatic grunt is occasionally heard. The myoclonic spasm is continuous in the waking state; is slightly controlled by the will for a few seconds, but is then intensified. The contractions have nodes of clonic intensity up and down these inclined planes, the muscular movements constantly travelling in more or less shorter periods of time (20 to 30 a minute); loss of consciousness occurs and the patient has an epileptic convulsion of varying severity. On April 7, 1899, and July 10, 1901, the patient had a rapidly recurrent series of myoclonic spasms constituting a status myoclonus; the latter period is well shown in the clinical chart appended. The contrast of this status with that of the status epilepticus is striking. The cardinal symptom curves are not dissimilar, but the ratio between the curves and the myoclonic contractions are not the same as that of an equal number of epileptic seizures. As the climax of each paroxysm approached —indicated as a myoclonic crisis on the graphic chart—the whole body was hurled by the spasm to the right. There was no rigidity and no convulsions appeared in the forearms or legs, but the shoulder, arm and thigh muscles were in violent agitation, the arms and legs being tossed about in the most distressing manner. At times a clonic movement in the masseters caused the teeth to chatter. The patient was perfectly conscious throughout the status and often complained of severe muscular pain and nausea at the acme of the crises. The dilated pupils always responded to light. The diaphragmatic spasms often caused projectile vomiting at the crises of several paroxysms forming the status. During certain crises of myoclonus the contractions of the abdominal muscles were so

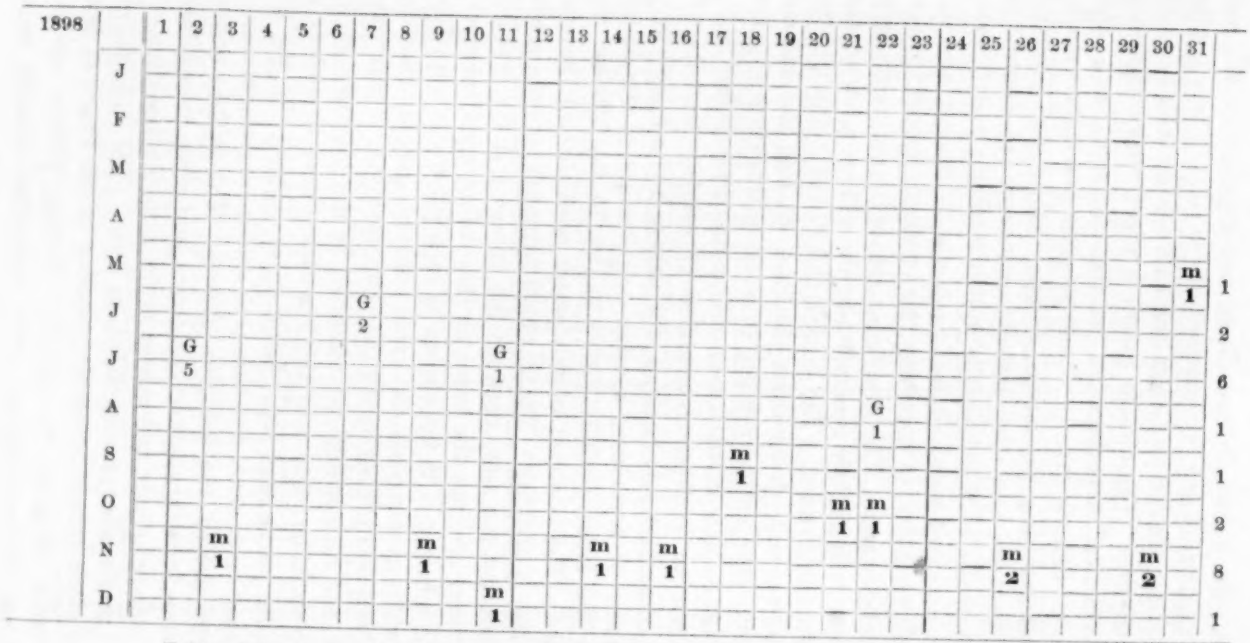


Table of Case I. A. V. Showing relationship in point of time between epileptic seizures (*G*) and myoclonic crises (*M*).

1899		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	J																																9
	F																						G	G								5
	M																				m	m	1	1						G	1	47
	A							m	m												3	1			m	m	m	m				3
	M							35	4												m				5	2		1		m	1	4
	J					m															2			m								8
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	A	1				m		m					G								1									m	1	4
	S					1		1		m			1				m															7
	O						G			1	m	m	m				2															14
	N		G				1				1	4	1																			1
	D		10								m	m												m								
											1	1												3								

Table of Case I. A. V. Showing relationship in point of time between epileptic seizures (*G*) and myoclonic crises (*M*).

1900		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	J																										m 1						1
	F	m 2													m 2											m 1							5
	M																																0
	A																													m 3			3
	M																								m 1								1
	J				G 1				G 2													G 2										5
	J													G 3																G 1		4
	A																								m 1		G 1						2
	S			G 1												G 4			G 1													6
	O							m 1												m 1					m 4								6
	N				m 1																												1
	D										m 3	m 1																		G 1			5

Table of Case I. A. V. Showing relationship in point of time between epileptic seizures (*G*) and myoclonic crises (*M*).

1901		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
	J	m																							G			m					3
		I																							I			I					
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Table of Case I. A. V. Showing relationship in point of time between epileptic seizures (*G*) and myoclonic crises (*M*).

sudden and intense as to cause the urine to be voided, to the evident distress of the patient. Each paroxysm lasted 15 to 20 seconds and consisted of from 40 to 50 most intense clonic movements. The face was flushed throughout, and the body was covered with a profuse perspiration. The patient lost several pounds in weight and remained physically and mentally exhausted for 24 hours before regaining her usual pre-status condition. The contractions were almost entirely absent for four days following the status periods.

Case 2. F. M. Male. Aged 19. Colored. His epilepsy and myoclonus developed simultaneously at seven years of age, after scarlet fever. The father and mother were both feeble-minded but had no disorder of motility. A brother is idiotic. Multiple stigmata of degeneration existed in our patient and he was imbecile.[1] The epileptic attacks which were reported by his physician to be classic occurred every other day and were of the petit mal and grand mal types. They were always preceded by an increase of the myoclonic contractions and followed by a temporary cessation of spasms for one to three hours.

The patient was bed-ridden when first seen by us. The arms and legs were considerably emaciated; myoclonic contractions, involuntary and irrepressible, affected the trunk, neck and thigh muscles. The clonic contractions were shock-like as though electrically produced and were locomotive in effect. Usually the patient was entirely free from spasm at intervals when allowed to remain perfectly quiet, while asleep and while under the effect of bromides. Voluntary movements and attempts to walk induced a veritable paroxysm of clonic movements; oftentimes only certain muscles or parts of muscles participated.

Contractions were irregular and not synchronous, but were always bilateral. The lower face about the mouth especially, was involved in the more general and intense paroxysms. Attempts at speech caused such a series of spasms that the patient ejaculated only about half a dozen words while under observation; usually such attempts ended in an unintelligible jumble of

[1] Patient came under my personal observation but seven days before death and a knowledge of his early history could not be obtained. I am indebted to Dr. Hanes for many of the details of this case.

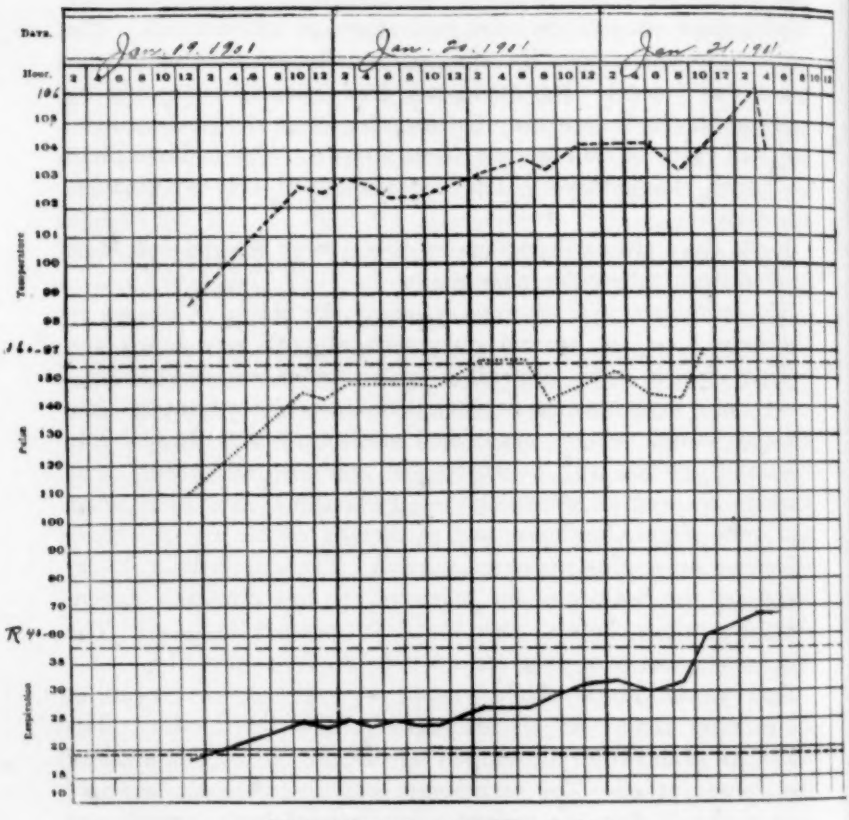
words. He could not stand alone, but the contractions ceased for a time when he was held upon his feet. Efforts to walk always caused violent contractions, the patient clutching wildly for support. No epileptic paroxysms occurred while he was under our observation, as bromides were given constantly in an effort to suppress the myoclonic contractions. Examination of the chest showed an advanced stage of tuberculosis. The diaphragm was noticeably affected and the peculiar myoclonic grunt was typical. He could not feed himself nor could he move about in bed in the slightest degree without inducing a series of three or four severe clonic spasms. The reflexes were uniformly exaggerated. The remainder of the examination was negative.

Eight days after coming under observation for the first time he died from tubercular pneumonia.

The infrequency of choreic epilepsy, the rarity of chorea in the negro, and the typical symptoms of both myoclonus and epilepsy which were controlled by bromides makes the diagnosis of myoclonus-epilepsy certain. Unfortunately the autopsy could not be performed until 20 hours after death, rendering useless any microscopical study of the brain. The findings showed an unusually small though symmetrical brain and some slight cloudiness and thickening of the pia; the brain substance on section appeared normal. There were no valvular lesions of the heart and the myocardium was normal. Extensive tuberculous changes were found throughout the lungs. The spinal cord was preserved for microscopical examination.

Case 3. G. McG. Male. Aged 22. Myoclonus began at 17; epilepsy at 20. All his paternal relatives were healthy. His maternal grandfather developed myoclonus at 25 and died of the disease at 46. The myoclonus was described as being of such a nature that the patient often injured both himself and others with farm tools, if the myoclonic attacks came on while employed with them. He grew steadily weaker in body and mind and was bed-ridden a year before his death which took place from exhaustion. There was no epilepsy in this case. An uncle and our patient's mother were the only children of the grandfather's family. The uncle is still living and well and has a family of five children who are also robust. The patient's

mother, although not very strong, never had any illness until the birth of our patient, her second child. The elder brother was a healthy boy until his death from appendicitis at 18. The mother developed myoclonus soon after the birth of our patient at the age of 19, and within a year thereafter had classic



Clinical Record. Case III. G. McG.

epileptic attacks once or twice each week. Bilateral ptosis developed with the advancing development of the myoclonus, a symptom also shown in our patient. The disease in the mother progressed rapidly and ran its course in three years; she was bed-ridden for two years before her death, which also resulted from exhaustion induced by the myoclonus-epilepsy.

Our patient was a normal full-term child, born after a difficult labor of 12 hours, although no instruments were used. The patient had convulsions during dentition at two, but otherwise was healthy until 17 years of age, when great physical and mental lassitude developed in marked contrast to the patient's former athletic disposition, since before he had excelled in swimming, base-ball and foot-ball contests. After these athletic exercises at 16 years of age his arms "often trembled and the shoulder muscles quivered." After discontinuance of athletics the tremblings became worse than before even when no exertion whatever was made. In a few months the myoclonic manifestations began especially in the upper extremity, being most marked in the right arm. The contractions at first were clonic, arhythmical and paroxysmal with free periods between the paroxysms, but as they extended over the body in the next few months their decidedly paroxysmal character ceased. The patient was then rarely free from contractions in some part of the body during the waking state, although there were days of varying intensity of spasms (good and bad days). In six months from the beginning the whole body became affected; the voice trembled also; the face and neck were last and least affected from below upward. At twenty-one the diaphragm was involved in the myoclonus, causing the patient to emit the sound "ahem." About this time he also developed difficulty in swallowing, emaciated rapidly and became bed-ridden. He was fearful of making an attempt at walking or even standing. He ceased to make any effort to write at the onset of the myoclonus.

In 1898 he developed classic grand mal epileptic paroxysms, which were always preceded by a gradually increasing intensity of the myoclonic contractions. Despite a progressive mental enfeeblement, commensurate with his disease, his intelligence was always above that of his appearance. Plate II, from a photograph, shows the patient's physical condition just before death. The patient became free from both myoclonus and epilepsy under bromide treatment, although his attacks had occurred twice a week before admission (see chart for the tabulation of seizures).

An epileptic paroxysm occurring while under our observation presented the following points: The attack occurred Septem-

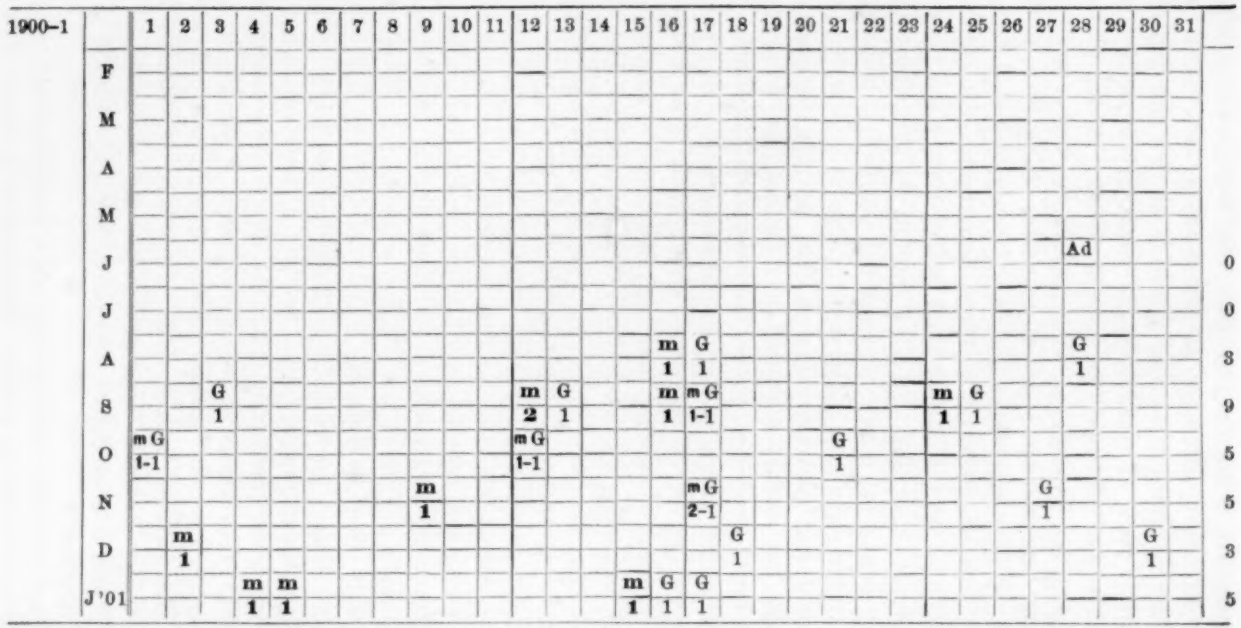


Table of Case III. G. McG. Showing relationship in point of time between epileptic seizures (*G*) and myoclonic crises (*M*).

ber 17, 1900, just after dinner. The myoclonic contractions of the pectoralis major, biceps, the quadriceps extensor and the muscles of the face were all much exaggerated for one hour before the attack. The contractions gradually increased in intensity, until the seizure began with a short period of tonicity lasting from 20 to 30 seconds. The epileptic convulsion was most marked in those parts previously engaged most intensely in myoclonic contractions. The tonic stage was followed by clonic convulsions for a period of two minutes, which in turn was replaced by deep stertor and coma. The patient slept for one hour after the convulsion had ceased and then awoke quiet; his mind was clear and the whole body was entirely free from myoclonic contractions. In five hours, however, the myoclonic contractions began again.

Both the myoclonus and epilepsy were benefited for a time by bromide, but chloral had no effect on either. After forced feeding the patient gained several pounds in weight, but as swallowing became more difficult diarrhea and emaciation set in again and the patient finally died of exhaustion and pulmonary œdema induced by the status myoclonus.

For several days before death the patient was in a condition of almost continuous clonic spasm, a form of status myoclonus. As the temperature began to rise on the 19th, the myoclonic contractions ceased and the comatose state of the status myoclonus began. The accompanying graphic chart is interesting in comparison with that belonging to the true status epilepticus, where grand mal causes the exhaustion instead of the myoclonic crises as here shown.

An autopsy was held one hour after death. The body was emaciated, this condition being more marked in the lower extremities. The dura was not adherent, the pia was slightly cloudy; the convolutions of the brain showed atrophy which was most marked in the right frontal region. On section the tissues were anæmic, otherwise the brain substance appeared normal. Examination of the cord proved negative.

Microscopical Findings. While the autopsy was performed one hour after death in this case, that of F. M. was necessarily postponed for 20 hours, and in consequence the brain of the latter showed such marked postmortem changes on micro-

scopical examination that the lesions were disregarded. The following study therefore relates to the nerve cells of the cortex in G. McG. only, since in these specimens postmortem changes could be absolutely excluded. No study was made of the neuroglia. Specimens of brain tissue from the Rolandic and frontal areas were rapidly fixed and hardened in absolute alcohol. Sections were made without embedding and the staining was done after the Nissl process, slightly modified. All the sections were from 7 to 10 microns in thickness.

The general appearance of the section presented nothing especially characteristic. In some instances, however, the outer cortical layer appeared very broad, occasionally uneven and sometimes seemed to encroach upon the cells of the second layer. In many instances the second layer cells failed to stain properly and appeared pale and poorly defined. This finding, however, was not general and was therefore probably due to faulty technique. There was chromatolysis throughout the cortex. This condition was not confined to any particular portion, but was general and quite as marked in the frontal as in the motor areas of the cortex of either side. No particular type of cell was involved, but the condition was evenly distributed. For example, the large chromatin granules of the so-called Betz cells of the paracentral lobule were quite as much involved as the chromatic substance in cells of the smaller type. In very many instances the cell framework appeared completely denuded of chromatic substance and nothing remained but a ragged mass of protoplasm, as shown in Figs. 2 and 5. These cells were all in the third cortical layer. In almost every instance the nuclear membrane was but poorly defined. Occasionally a fragment or a dim outline of the nuclear membrane could be made out. This condition showed to best advantage in the type of cell represented in Fig. 4, belonging to the upper portion of the third layer. In this instance, we not only have a dim outline of the nucleus, but it appears greatly swollen and balloons out the cell body. This condition is very commonly met with in this case and is similar to that present in marked degree in patients dying during the status epilepticus. The nucleus in every instance was quite granular. Frequently it was so extremely granular and so poorly outlined that it merged

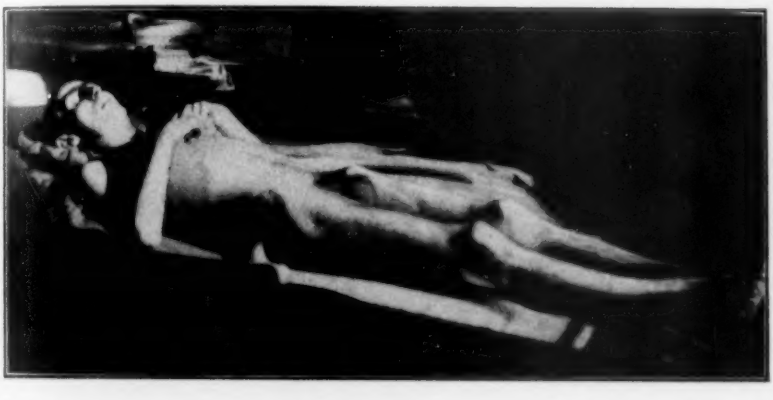


Fig. 1

Fig. 1. One of the better preserved cells of the third cortical layer, frontal region. The nucleus is large, poorly outlined and very granular. Very little trace of intranuclear network remains. Very little chromatic substance remains in the body of the cell.

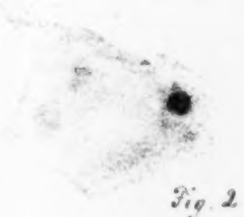


Fig. 2

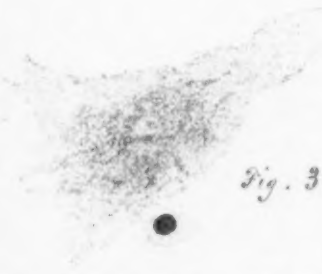


Fig. 3

Fig. 2. A greatly degenerated nerve cell of the same type as the above, in which the nucleolus is greatly displaced. The nuclear membrane and nuclear outline have almost disappeared and very little remains of the chromatic substance? The whole cell mass is very ragged and finely granular.

Fig. 3. Nerve cell of the same general type as the above from which the nucleolus has been entirely abstracted. The absence of chromatic substance, nuclear membrane and nucleus are to be noted, also the finely granular appearance of the whole cell mass.

Fig. 4

Fig. 5

Fig. 4. Nerve cell in the second cortical layer from which the nucleolus has been completely abstracted. The outline of the nucleus can still be made out. The nucleus is greatly swollen and granular.

Fig. 5. A much degenerated cell mass in the third cortical layer. Nuclear membrane but slightly defined. Nucleus granular, no nucleolus and no chromatin granules.

All drawings were made by aid of an Abbe camera lucida, Zeiss ocular No. 3, objective, oil immersion 1/12.

gradually into the surrounding structure, as shown in Fig. 2. Fig. 1 represents one of the better preserved cells of the third layer and is an example of the best that it was possible to find. In this cell we are still able to outline the nucleus, but it is swollen and granular and the chromatolysis is extreme.

The general distribution of this condition was very striking. Chromatolysis, absence of nuclear membrane, and the granular (often swollen) nucleus were noted in every portion of the cortex examined. Sections from the motor and frontal regions of both sides were examined and the same condition was found quite as pronounced in the one as in the other. A point of extreme interest—because it has been demonstrated in every case of epilepsy that we have examined—is shown in various phases in Figs. 2, 3 and 4.[3] In these cells the nucleolus is displaced to a greater or lesser distance from its normal position. In some instances it is merely displaced within the normal position; in others it has moved but still remains within the cell; whereas relatively often it is completely removed from the cell, as is shown in Figs. 3 and 4. These are artefacts produced by the motion of the knife in making the sections. On account of some conditions peculiar to the myoclonus-epileptic state the intranuclear network has been destroyed and the nucleolus, having the properties of a loose body within the nucleus, is readily abstracted therefrom when it comes in contact with the knife. This has been found in all cases of epilepsy that we have examined and is particularly pronounced in cases dying during status. There is, however, an important point of difference between the condition here presented and that obtaining in true epilepsy. In the case under consideration the type of cell especially involved is the large pyramidal cell of the third layer, as shown in Figs. 2 and 3, whereas in uncomplicated epilepsy the cells chiefly involved belong to the second layer and other cells of that type.

Some idea of the frequency of this condition may be gathered from the fact that in one slide twenty-four examples of nucleolar abstraction were found in passing over the entire thickness of the cortex seven times with the immersion lens. The section

[3] See Proceedings of the New York Neurological Society, Oct., 1900.

in this instance was from the frontal region. For the sake of comparison, three other slides from the same region were examined in like manner and they showed respectively, twenty, twenty-one and fifteen examples of nucleolar abstraction in a like cortical area. Very many cells were found without a nucleolus, as is shown in Fig. 5. These were frequently mere ragged masses of protoplasm, without chromatic substance and presenting no trace of nuclear membrane or nucleus.

The significance of these changes is important. We have here a group of conditions in most points similar to those found in our study of epilepsy. These relate especially to the nucleus of the nerve cell—its highest anatomical unit. When the nucleus of a cell is destroyed, that portion of the cell that presides over its vital processes becomes hopelessly impaired, and as a result the cell dies. This is a biological fact abundantly proven. That this takes place in the various epileptic conditions we have previously demonstrated. In epilepsy the nucleus of certain cells becomes so seriously involved that the cell ultimately disappears from the cerebral cortex and the slowly progressing dementia of the epileptic is the direct result.

In this pronounced case, associated as it was with the epileptic condition, we find the same conditions that are found in uncomplicated epilepsy. While more of the large pyramidal cells of the third layer appear to be involved in myoclonus-epilepsy than in epilepsy proper, nevertheless both this type of cell and the cell of the second layer are implicated in the latter as well as in the former.

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NURSES IN HOSPITALS FOR THE INSANE.

By A. B. RICHARDSON, M. D.

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No apology is necessary for bringing to the attention of the Association the subject of the nursing care of the insane.

It is one which has already very properly received much consideration and occupied much of your time. Theoretically, we all agree that, both in the selection and in the proper training of nurses for the insane, no pains should be spared. My wish now is to apply the theory to which we all subscribe, to outline the methods followed in the hospital with which I am connected, in the hope, first, that something may be thereby disclosed that will aid in advancing the cause of hospital nursing of the insane, and secondly, that the discussion may bring out suggestions that will enable me to still further improve the service.

The conditions existing in the Government Hospital for the Insane are, in some respects, peculiar and for this reason I am aware that all of the suggestions may not be equally applicable to other hospitals for the insane. The hospital is a large one; our patients now numbering about 2250 and increasing at the rate of more than 100 annually. As regards sex, there are at present in the hospital 1725 males and 525 females, and of the former a large proportion come from the army and navy and from the National Homes for Disabled Volunteer Soldiers and Sailors. The majority of these are advanced in years and feeble in body and mind. Almost 10 per cent of the entire population of the hospital are constantly in bed and another ten or fifteen per cent are barely able to be about the wards and out of doors when the weather is pleasant enough for them to sit about without discomfort.

Attendants are selected under regulations established, after consultation with the hospital authorities, by the U. S. Civil Service Commission. A blank application has been prepared

which the applicant must fill out in his or her own handwriting and to which affidavit must be made before a proper officer. It comprises complete data as to height, weight, age and general physical condition, the amount of school training, the occupations followed and the residence year by year. The applicant must also state whether he or she has ever been charged with any criminal act. Each question is so framed as to admit and require a rather extended reply. Two certificates from reputable citizens of the locality claimed by the applicant as a residence must accompany the application and also the certificate of a physician as to the physical condition of the person applying. The applicant must also state the extent of service, if any, in government employ and the experience he may have had in the care of the insane.

This application is mailed to the superintendent of the hospital and delivered by him to a local branch of the U. S. Civil Service Commission, composed of two members of the hospital medical staff and a secretary who is also an employe of the hospital. The application is by them given a rating based on all the data comprised in it, height, weight, age and physical condition being considered as well as experience in such service, and the general appearance, including orthography, composition and neatness of the application as presented. When the applicant has had service in another hospital, he is required to present a letter of endorsement from its superintendent, or the latter is asked to give his opinion of the applicant's service, before the rating is made.

Each month all the applicants for the month previous receive notice of the rating given. A careful record is kept of these ratings and when a vacancy occurs the superintendent is given the names of the three highest on the list, from whom he must make a selection or give his reasons for passing by the names presented. If a name is passed by three times, it is dropped from the roll and applicants are continued on the eligible list for one year only from the date the rating is given. An average of 70 in a maximum of 100 is requisite to place the name of the applicant on the eligible list. When a selection is made the applicant is requested to present himself for physical examination, which enables the superintendent to determine the

state of the physical health as well as the degree of intelligence and the apparent general desirability of the applicant. If the applicant is then selected he comes on a six months' probation, the males receiving for this period $18 per month and the females $14.

During the probation period, or as nearly as possible after its close, the physician, in whose department the attendant is employed, and the chief of the training school determine whether or not he or she shall enter the training school. This training school was established three years ago and the second class completed the course of instruction on May 23d of this year.

The school is under the charge of a chief who is a woman, a graduate of a training school of a general hospital and with several years' experience in the care of the insane. The course covers a period of two sessions each lasting from Oct. 1 to June 1. Weekly recitations are given by the chief of the school to the Junior class from Weeks' Text-Book on Nursing.

A lecture is also given each week by a member of the medical staff of the hospital, the different subjects being divided among the several members of the staff. The chief of the school attends these lectures with the class. The members are required to take notes of the lectures, write them out later and submit them to the chief for criticism, explanation and correction.

To the Junior class four lectures are given on anatomy, four on physiology, three on chemistry, three on materia medica, three on bandaging, local applications and surgical dressings, two on what to observe and report to the physician, four on bacteriology, four on mental diseases. In addition three are devoted to a general review.

The Senior class have five lectures on materia medica, medical chemistry and urinalysis, four on regional anatomy, four on physiology, four on bacteriology and hygiene, three on surgery, four on hydrotherapy, massage and electricity, three on pathology and regional anatomy, and three on mental diseases. An examination is held in each subject at the close of the series of lectures and an average of 70 is required in each.

Weekly quizzes are held by the physicians on most of the subjects and the instruction is made as practical as possible.

No attempt is made to teach the subjects as they are taught to medical students, but simply to give such parts as may be of use to the students as nurses. Everything is made as simple as possible and the use of technical terms avoided as far as is consistent with the ends desired. In materia medica, the most important medicines are taken, and by sight, handling and use, the students are familiarized with them. The study of anatomy is chiefly limited to regional anatomy and the structure of the principal organs of the body. In physiology, such practical subjects as digestion, blood formation and circulation, respiration, and excretion are given prominence. The bacteriological course comprises a review of the simplest classification of bacteria, the nature of those found in disease, the points to be observed in the diseases in which they are found, how they are disseminated, together with such parts of the subjects in general as the nurse should know and may reasonably be expected to understand. The study of hydrotherapy, massage and electricity is entirely practical. A patient dressed in trunks is brought before the class and each member is shown the various movements of massage, the different methods of bathing, and as far as practicable is required to practice the various movements under the eye of the instructor. The same method obtains for bandaging and local dressings.

The entire hospital is divided into five departments, with a senior medical officer in charge of each. Four of them have a female head nurse in charge of each. This nurse is a graduate of several years' standing. She has immediate charge of all the sick in that department and of all acute cases. She gives special bedside instruction to the nurses of the school in all that pertains to their duties in the sick wards. These nurses, as far as is practicable, are given periods of three months' service each, on the receiving ward and the hospital ward proper, the infirmary, the ward for disturbed cases, with the convalescents, and on night duty. They are required to make careful notes of all sick and all special acute cases, to dress all sores, wounds and fractures, to properly handle patients in bed, to give hypodermic injections, enemata, baths, massage, to record the pulse, temperature, respiration and actions of bowels and kidneys, to describe the mental condition of the patient, the way

in which he occupies his time and every accident that occurs. About twelve graduate female nurses, or those in the Senior class are employed in the male hospital and infirmary wards. These have especial charge of the nursing care of the patients. Each department of the hospital, as above described, has an office in the hospital ward, which is equipped with appliances for surgical dressings, minor surgery, etc., and a cabinet with the usual medicines required. Most of the medicines prescribed are kept here, and many of them are compounded by the nurses. All medicines are administered under the direction of the head nurse of the ward.

During the first year of training, males receive $20.00 per month and females $18.00. During the second year the wages are for males $25.00 and females $20.00. After graduation associate nurses receive $30.00 per month for males and $25.00 for females, and when in charge of wards male graduate nurses are paid $35.00 per month and females $30.00. When female graduate nurses are employed on male wards they receive $32.50 per month. In all cases board and washing are included. Attendants who have not taken the training receive about $5.00 per month less.

During the course lectures are given to the female nurses in cooking by the dietician who has charge of the entire sick diet of the hospital wards and who has herself taken a full course of instruction in a cooking school of recognized standing.

Throughout the course the importance of the moral treatment of the insane is made prominent, and the nurses are taught to consider all these means as only adjuncts to the constant efforts which the nurse should make to direct aright, and to guide into normal channels, the activities of the patients in his charge.

To sum up, the influence of the course of training has been here, as I believe it is universally found to be, markedly beneficial. I desire especially to commend the service of the female nurses in the male wards. There has been a very decided change for the better in these wards. There is an increased appearance of neatness of both patients and beds, there are less frequent complaints and a greater degree of contentment among the patients. Great care, of course, is used in selecting candi-

dates, but the results thus far have been surprising even to ourselves in the readiness with which the nurses adapt themselves to the work and the little that we find in any manner objectionable in the conduct of patients toward them. It also increases the confidence of the friends of patients. How far this service can be extended we have not yet fully demonstrated. In a general way the female head nurses, before referred to, have general charge of the entire hospital service in all the wards for the acute and chronic sick and for many of the feeble classes. Female nurses are actually present constantly during the day in eight hospital wards. Male nurses and male attendants are also on duty in these wards, but the responsibility for the nursing care of the patients, the recording of notes, and the administration of remedies are primarily left to the female nurses. We find their presence in these wards of advantage in many ways and thus far we have not discovered any disadvantages. One of these hospital wards is also a receiving ward and in it we have three female nurses, two male nurses and a dining-room attendant.

The number of graduate nurses from the two classes now in the service of the hospital is 52. A few are sent out in charge of private cases in the City of Washington and this we have encouraged, believing it to be of advantage to the hospital in widening the experience of its nurses and in keeping it in close touch with the medical profession outside. Moreover, by this means we aim at securing a wider dissemination of the correct methods of nursing in insanity.

How far it will be practicable to introduce female nurses into the general wards, for the care of the able bodied chronic cases, is yet untested, and I have doubts as to its adaptability for these classes. I believe, however, that for all acute and curable cases, the introduction of one or two discreet, intelligent and trained female nurses into each ward, more particularly for the moral treatment of the patients and the general supervision of their medical treatment, is of decided advantage and entirely feasible.

With the lapse of years, and as my experience has been extended, I have been more and more impressed with the fact that the female is, generally speaking, better adapted to the position

of a nurse for the sick insane, than the male. In my experience the chief reason for this superiority has seemed to be the different point of view of the two. Men who take up this work so frequently look upon it as a temporary employment and one to be used simply as a present expedient or a stepping-stone to something more remunerative. They also are less disposed to look upon it as a profession or a work that would justify any special preparation for it. Women, on the contrary, are more inclined to consider the work of nursing as deserving their best efforts. They take more pride in it. To the class from which they are chosen there are few occupations that offer more financial inducements and they are, therefore, less inclined to change. They are more ready to undertake the training required because they see in the work a permanent employment at good wages. I believe, too, that females, taking them as a class, are by nature better adapted to the profession of nursing. The duties and responsibilities of motherhood are reflected to some extent in the nursing work of most women. They have a kinder and more sympathetic manner, are more patient and long suffering. Their touch is gentler.

These qualities have been recognized for years in general hospitals and I am now disposed to believe that they are relatively just as valuable in the treatment of insanity as of any other disease. Certainly it is true for many classes of the insane, particularly those that require special nursing and individual care. Nearly all forms of acute insanity and all feeble, sick or bedridden among the chronic cases, are better cared for by females.

It will of course never be advisable to attempt wholly to dispense with male help even with these classes. Orderlies or male assistants will be required for the heavy work which goes with the care of most of these cases and also for possible outbreaks of violence, although I have found the latter remarkably infrequent where female nurses are employed.

There can be no question that the insane are visibly impressed and influenced in their conduct by the presence of women. Insults and improper language have been surprisingly less frequent than are found by a male physician among female insane. Why this is so I cannot explain, but my experience

has demonstrated its truth. Men who abuse their doctors and are generally suspicious of their surroundings, often yield unquestioning obedience to the female nurse. I have seen this in many instances and the male patient is a rare exception who goes out of his way to offer any insult or show any disrespect to a woman who comes to him in the capacity of nurse. All the white patients not suffering from chronic forms of mental disease, admitted to the Government Hospital for the Insane for nearly one year past have been placed in a ward where the majority of the nurses are women and I believe we have had a good opportunity to test the question, inasmuch as we have had to deal with an unusual variety of classes. We receive the young soldier from active service, the veteran from the Soldiers' Home and civilians of all social classes from the District of Columbia.

I look forward to a gradual extension of this service; but how far it can be carried with advantage, only time and future experience can demonstrate.

THE MENTAL STATUS OF CZOLGOSZ, THE ASSASSIN OF PRESIDENT McKINLEY.

By WALTER CHANNING, M. D.

Most of the matter presented in this paper bearing on the history of Czolgosz before the crime and his family is new, having been personally collected either by my assistant or myself in Cleveland and other places.[1]

In offering it as a contribution to the subject I have no wish to prove either that Czolgosz was or was not insane, unless on the whole there are data enough to justify an opinion one way or the other.

It would be a most comfortable position to take that the trial of Czolgosz had settled the matter once for all, but unfortunately as there was no defense, any evidence in his favor was not brought forward. In an ordinary trial what evidence there might be in the prisoner's case would be considered with deliberation and thoroughness, but public opinion had indignantly condemned Czolgosz in advance, and no court and jury could be expected to stand up and oppose the will of the people, and hence in an eight and a half hours' trial, with no defense, he was condemned unheard.

From personal experience in the Guiteau trial I had some knowledge of the pressure, direct and indirect, exerted by the force of public opinion, and in that case became aware that in the very shadow of such a terrible tragedy as the assassination of the ruler of the country, a scientific investigation free from prejudice was hardly possible. At this date no doubt can be entertained by fair-minded alienists, that Guiteau was insane, and yet at the time of his trial a large number of experts who

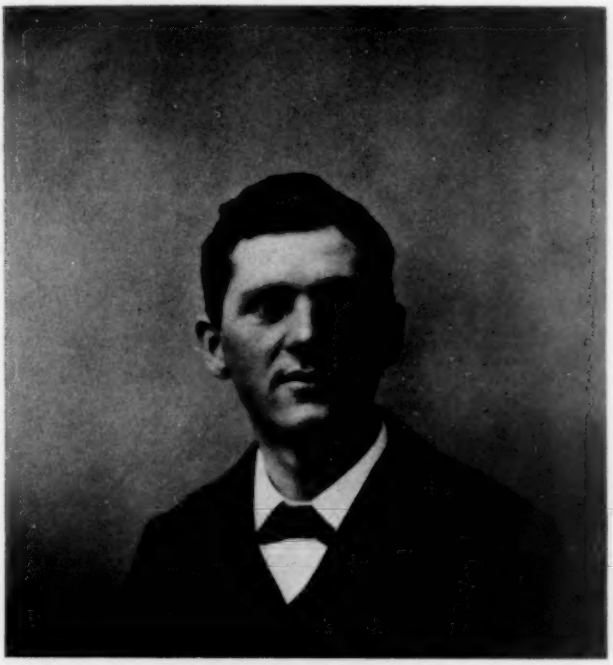
[1] My thanks are due to Dr. L. Vernon Briggs, of Boston, who at my request has at the cost of great labor and pains collected evidence for me in various parts of the country.

had seen him day after day for weeks testified on the witness stand that he was sane. The fact that these men, who intended to give a fair opinion, were misled, shows that sometimes the nearer one may be to the scene of action, the less possible it is to be calm and judicial and unbiased in forming an opinion.

It is well to remember here that there are two methods of conducting an investigation into the mental condition of a criminal. One is the scientific, which obtains all the evidence, not only at the time the crime was committed and afterward, but before and as far back as possible. Every alienist knows that it is of the first importance to determine what the normal make-up of the man has shown itself to be before we pass judgment on him as to what he was at the time he committed the crime. Delusions which may have dominated him are often subtle and difficult to detect, especially as the crime sometimes is in the nature of an explosion, which for the time being relieves mental tension and makes it more possible for the criminal to act temporarily in what appears to be a normal manner. It is possible that much sifting of data and much time may be required, before a conclusion can be arrived at. In a doubtful case haste is most fatal to a thorough scientific investigation.

The second method to which I refer, we might call the popular or pseudo-scientific one. This perhaps starts with an assumption one way or the other and evidence in favor of this assumption is accepted, and to the contrary rejected. Such a procedure as this being prejudiced from the start, clews which might lead to valuable results are neglected. The whole investigation is in fact one-sided and unlike the scientific one, which starts with no assumption and comes to no conclusion, until all the facts obtainable have been carefully weighed.

While it is far from my purpose to suggest that the medico-legal investigation of the Czolgosz case was conducted after the latter method, such reports as have appeared have been brief and lacking in details, and can hardly be regarded as furnishing a satisfactory scientific basis of an opinion. They apparently rest chiefly on what the man said and how he appeared after the crime. Whether or not he was in what for him was his normal condition, could not be told by anything published



LEON F. CZOLGOSZ, 1899.

LEON F. CZOLGOSZ, AFTER ARREST, SEPTEMBER, 1901.

except in as far as he stated himself. No apparent effort was made to trace his history back and see if the crime was an act rationally consistent with such a man as he was in health.

I regret that the experts were forced to take such immediate action as they did and present an opinion based upon only a portion of the data available. For this reason I regard it as desirable to publish the facts embodied in this paper. No doubt others will obtain more, and by and by when we get at the whole history of Czolgosz from beginning to end, we may have enough data to give us the final verdict which will stand in the future as the correct one. It is a strange way that history has of slowly but surely getting at the truth of a matter and often reversing the conclusions arrived at in the heat of the battle.

PERSONAL APPEARANCE OF CZOLGOSZ.

Looking at the photograph taken in 1899 (Plate IV), two years before the assassination, which has not been touched up by the photographer for effect, we see a well-modelled head as to the zygomatic arches and upper lip, the latter handsomely curved. The forehead looks a trifle narrow, but fairly high. The nose is straight and well proportioned. The ears look symmetrical. The eyes are somewhat wide apart and set a little deeper than usual. The prison officer spoke of the upper lids seeming heavy, giving the eyes a dreamy look. The left lid is a little more elevated than the right. The chin, while not square, is well shaped and firm. The mouth is well proportioned and firmly closed. There is a deep naso-labial fold on the right and a slight labial fold. These folds indicate a tendency to contract the muscles of the right side of the face, and constitute a slight asymmetry.

The general expression is at first sight pleasant, but finally leaves an impression of introspection and cynicalness. This is increased by the cold and fixed expression of the eyes.

The finely chiselled upper lip with its cupid bow lends a certain attractiveness to the face, and the whole effect is that we are looking at a good-tempered, straightforward, frank, honest young man, free from vice and depravity, perhaps a trifle effeminate, but refined and in intelligence above the average of his class.

The photographs taken after the crime (Plate IV) are not as good a piece of work, but the essential features are the same. There is in the front view the same serenity, reflectiveness and directness and not an indication that a ripple of excitement has disturbed the mental life beneath. "This must be the face of some inoffensive young man," I am tempted to say. "This surely cannot be a murderer with blood still red on his hands." The profile view is not pleasing and has the effect of a weak and womanish face. In this the Adam's apple is prominent.

Mr. Spitzka describes the features of the assassin as follows:[1] "The nose is pointed, slightly retroussé and fairly straight, deviating a little at the point of the injury inflicted at the time of the assassination. The eyes are blue. The hair light brown and slightly curly. The face is oval and symmetrical. The ears are well formed and absolutely symmetrical. The mouth is well shaped. The lips full. The teeth are of normal shape, but in poor condition.

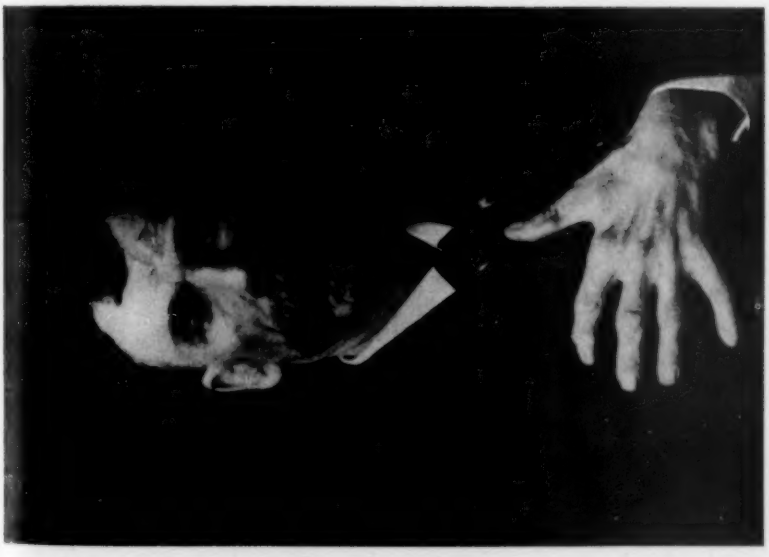
"The head of Czolgosz is typical of the Poles and falls into the sub-brachycephalic class; according to Weisbach the cephalic index of 40 Poles was 82.9 (82.88 in Czolgosz)."

FACTS RELATING TO THE EARLY HISTORY OF CZOLGOSZ.

The Family.—The family history of Czolgosz is as follows: His paternal grandfather died at 40 after a severe cold. Paternal grandmother died at 72, of old age. Maternal grandfather died of causes unknown. Maternal grandmother died at 30 of some blood disease. Maternal aunt insane; cause of death unknown. Leon's mother died six weeks after birth of a child. His father, Paul, is 59 years of age, laborer, married twice. The brothers are Waldeck, 34 years of age, mill-hand, unmarried. Frank, 32, mill-hand, married. Jacob, 23, U. S. pensioner, married. Joseph, 22, beef-packer, unmarried. Michael, 21 years, farmer, unmarried. The sisters are Ceceli, age unknown, married, house-keeper. Victoria, 18, unmarried, waitress.

Paul the father was born in Prussia. Arrived in this country

[1] Post-mortem Examination of Leon F. Czolgosz, by Edward Anthony Spitzka, Medical Record, January 4, 1902.



PAUL CZOLGOSZ. FATHER, 1902.

early in 1873 and the family soon followed. They lived in the following places in Michigan: Detroit City seven years, Rogers City six months, Alpena five years, Posen five years, Natrona near Pittsburg, Pa., nearly two years. In 1892 they arrived at Cleveland and have lived there, or in a place called Warrensville not far off, since that time. The family have the reputation of being hard workers.

The father is rather a rough looking man (Plate V). He has blue eyes, dark brown hair mixed with grey. Heavy ears standing out from the head. Defective lower jaw. The photograph of the front view of the father as far as the upper part of the face is concerned brings out no asymmetries and is even rather pleasant, but the profile view is different. In the latter, although the head is carried unusually far back, the forehead appears low. The upper part of the face is prominent in relation to the chin, which is not well developed. The lips protrude, the upper one covered with a heavy moustache. This combined with a nose flat at the base and broad and prominent at the alae gives a deformed look to the face. The eyes are deeply set under thick eyebrows. The skin is leathery-looking, bagging under the chin and furrowed in every direction, even in the neck. This is largely explained by exposure to the air. The expression is dogged, somewhat sullen, sad and rather stupid. When we remember the strain that must have been on the father since the terrible crime committed by the son, we must ascribe some of his appearance to that, and we must remember also that he is an ignorant Pole who has had to fight his way for many years in a land of strangers, but making due allowance for these things the physiognomy is indifferent and stupid. Like the sons that I saw the father is emotional. He displayed much feeling in my interview with him and the foreman said he probably would not recover from it for several days.

Attention should be called to the left hand posed by request to show its peculiar conformation and to the round medallion picture of the dead son mounted on a black rosette on the left coat lapel. He wears this only on his best clothes, but the son Waldeck wears a similar one constantly. I understand that it is customary with the Poles to wear this insignia of mourning.

The father is unable to speak more than a few words of Eng-

lish. He has a weak memory and seems entirely unable to give any dates. He has worked at various kinds of labor. At one time he was in the lumber business; has owned several farms and has worked on the city sewers. He is now employed by the city of Cleveland in the Water Works Department. He worked at one time in Michigan with many others for a man named Molitor who tyrannized over them. Molitor was finally killed by his workmen. The newspapers have stated that Paul Czolgosz was one of them. The son Waldeck claims that the father was not in Rogers City when Molitor was killed. Of the mother little is known outside of the circumstances of her death as detailed by the father. She was 30 years old when Leon was born, a month after she arrived in this country.

As a little child the father says Leon was quiet and retired. It was hard for him to get acquainted with other children; he cared to play with only a few. If he was angry he would not say anything but he had the appearance of thinking more than most children. He sometimes did not want to do what he was told, but perhaps not more so than other children. As far as the father can remember Leon never had any convulsions or fits or any children's diseases. He minded his own mother better than the step-mother. As he grew older he was very bashful. This was always characteristic so that the father cannot understand how he could become so violent if he was not insane. He went to both English and Polish schools for about five years altogether, part of the time going to evening school. The father does not remember that he had any chum or intimate acquaintance of either sex and never saw him in company with any girl. He says Leon had not been a hard worker since 1898 because he was ill; that he liked to read, and the father did not oblige him to work because he thought him sick, and because the boys owned most of the farm.

The Brother Waldeck.—Waldeck is rather undersized in height, strong and thick-set. Hair is brown, brown moustache, grey eyes, florid complexion, smooth skin, large mouth, short nose with the flattened bridge like the father's, and undeveloped jaw.

Waldeck says that Leon went to work in the wire mills where he worked continuously from 1892 to 1898. The days were long and they got pretty tired. He does not remem-

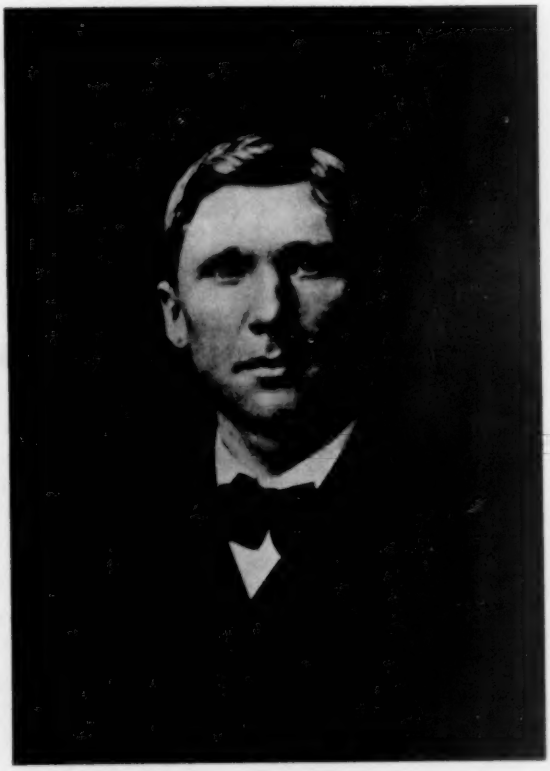
ber that Leon read very much. About '93-'94, Leon with a great many others was laid off on a strike. At this time he "got quiet and not so happy." He applied again for work at the same place and gave the name of Fred. C. Nieman, by which name he has been known more or less ever since. He describes Leon as cool, getting mad if plagued about drinking or the girls, and not inclined to talk. That he drank little and did not swear and did not associate with any girl.

In '98 he left work saying he was ill; he went to doctors who told him he ought to stop work at once. He gives the names of several doctors whom Leon went to for treatment. About '93 or '94, this being the time of the strike, Waldeck says he and his brother were strict attendants at the Catholic church. Up to this time they had believed what the priest told them, which was that if they got into any trouble or need, and prayed, their prayers would be answered. That they both prayed very hard but they were not answered. They went to the priests and said they wanted proof and were told again that they would be helped if they would pray, but they were not, so they bought a Polish Bible, and found after reading it several times that the priests "told it their own way and kept back most of what was in the book." Waldeck remembers Leon saying once that he believed "the priest's trade was the same as the shoemaker's or any other." Waldeck produced the Bible which they had used and which was much worn. They got other books and pamphlets about the Bible and on other subjects and studied them; then they "knew how it was." They read these books together for about a year and a half, when Leon preferred to read alone and read a good deal. Some of the books Waldeck produced and I have them now in my possession. Among them is Bellamy's "Looking Backward" in Polish. Another was one of the so-called "Peruna Almanacks" and Waldeck said Leon liked this because it always told him his lucky days.

About three years ago Leon was so ill that Waldeck advised him to go to the hospital. He seemed "gone to pieces like" and looked pale. But Leon said, "there is no place in the hospital for poor people; if you have lots of money you get well taken care of." While on the farm Leon did not do any heavy work unless obliged to, although he was not unwilling to take

a hand if he saw it was necessary. Most of his time was spent in repairing old machinery and wagons on the farm. He fussed around with small things. He sometimes traded horses and Waldeck remembers that he got badly left at least once. Leon once applied for a conductor's job on the electric railroad but Waldeck knows of no other work he sought other than this since '97. He liked to be away from the other men and by himself, doing little but jobbing around or reading or sleeping. He was a good hunter. He owned a breech-loading shot gun, and, beginning early in the fall and up to as late in the winter as he could track rabbits, he would go hunting every day. He usually went with a shot gun, revolver, stick and sometimes a bag. If the rabbit was some distance off he would shoot him with the shot gun, if he was near he would use the revolver with which he was quite skillful. He would take the sack and cover one end of the rabbit hole, then with a long stick or sometimes with a fire built at the other end, he would drive the rabbit into the bag when he would kill it.

In March or April, 1901, Leon was quite restless and wanted to get his money out of the farm so he could leave the city. He kept up this talk about getting his money until July, sometimes getting quite put out that he could not realize on his share. From this time he commenced his trips to the city, or it was thought he went to the city. First he went one day a week; a little later he went for two or three days; then he would go one day one week and the next week two or three days. They asked him where he went; he said to attend meetings. They thought it was the meetings of the Golden Eagle or some insurance association that he was interested in or to solicit insurance, but as he was naturally secretive they did not question him very closely. The society mentioned is a benefit association of which there are several. Leon said to Waldeck, "if I cannot get my money now I want it in the summer." In July he said the same thing again. Waldeck said, "what do you want the money for?" They were standing on the street near a tree that was dying, and Leon said, "look, it is just the same as a tree that commences dying; you can see it isn't going to live long." This referred to Leon's not living long. Waldeck said that if Leon went West he could not stay long because he had so little



JACOB CZOLGOSZ, YOUNGER BROTHER, 1902.

money. Leon said, "I can get a conductor's job, or binding wheat, or fixing machines, or something." Just before Leon went away he told Waldeck he "had got to go away and must have the money." Waldeck said, "why you got to go so far; what is the matter with you?" Leon answered, "I can't stand it any longer."

The Brother Jacob.—Jacob is above the average in height; hollow-chested and large-boned (Plate VI). Is a gawky looking fellow. Has the characteristic nose of the family. He is living on a pension he receives from the government, owing to slight injuries received during the Spanish war while he was doing government work in this country.

The wife of Jacob is an intelligent young woman twenty-three years of age. She was married about the 23d of June, 1901, but had known the family for some time before that. She had thought Leon odd and not like other boys and that he acted queerly. He said he was sick but she could not see that he was, and "if you said anything to him about his sickness he would get mad." He also told her he wanted to sell out and go West and she thought as he acted so queerly it would be a good thing for him to go West. She advanced him money so he could go away. For four years he had been living on the farm and not doing anything but catch rabbits, etc. He had a cough when she was out there, on the farm, and "would spit out great chunks." He was lazy and would go out under a tree and sleep. His stepmother would try to get him to work, but he would not. She did not believe him sick either. Not long before he went away he said to his step-mother he was going to Kansas and she said it would be a good thing as he was always having a fuss with her. He would call her names such as "old woman," etc. He would play with the children, of whom he seemed very fond, provided he knew them. He would talk childish talk with them, and the way he behaved with them made the sister-in-law say more than once that he must be crazy because he would do such childish things. He was always fixing up boxes, wheels, and tinkering around. He would take the milk from the barn to the cheese house and never wanted any one to go with him. Three or four months before he went away he would not eat anything at the table, and only took

bread and milk with sometimes a little cake. He would take this up to his room and eat it there. He took two quarts of milk a day and sometimes more. "He never talked much and did not like it if you talked to him too much." He liked to be let alone and was always called "cranky" at home. He did not dress well on the farm but was "all ragged out."

The day the sister-in-law gave him the money, which was the day he left, he seemed quite happy. He went up-stairs and dressed in his best clothes, and went out, taking nothing with him except what he had on his back. He did not want his parents to know he was going. He told the sister-in-law he was going to Kansas, but said to his sister that he was going to California for his health.

The Brother Joseph.—Joseph, the youngest brother but one of the family, has a markedly good reputation. He is of correct habits as far as is known, in every respect. He has worked in one place for eight years, where his employers have a high opinion of him. He says "Leon was a nice boy." He lived by himself. He did not like strangers; that he never talked to girls and when he met or saw those he knew when they were coming from church or other times, he would cross the street rather than speak with them. That he "was always awful bashful." That he slept well at night and slept a good deal otherwise. That he was very fond of hunting. That he was a good mechanic and always fixing up boxes and wagons. He took a sewing machine apart and put it together again. He said Leon was sick about five years ago; he had a cough, and while he did not look sick he was always taking medicine and sent a long way off for an inhaling machine which he used two months. The latter part of the time he was in the country he would "read and sleep all the time." When asked what he meant by "all the time" he said "a great deal of the time; that it seemed all of the time." When he got his paper he would sit in a chair and read it; that in a little time he would look at him and he would see the paper had fallen on his breast and Leon would be fast asleep. In a little while he would wake up again and be reading the paper.

Last winter when the stepmother left the country for the city Leon stayed in the country and cooked for himself and

the family when they were there. When she returned about March, he would not eat with them or go into the house when she was there if he could help it. He used to take his milk each day from the cans after the cows were milked, about three quarts, and put it in the cellar. When he wanted it he would go down and get it and take it to his room or out under a tree and drink it by himself, taking a little cake and sometimes crackers with it. He seldom took anything else except when the stepmother was away from the house for a time when he would go into the pantry and eat something. There was a little pond near the house where he would fish for small fish and would keep them until his stepmother went out of the house for a time when he would run into the house and cook them and eat them by himself, but if she returned or strangers came in, he would let the fish burn or throw them away.

Joseph said he did not believe at first that Leon killed the President; he never believed he could do such a thing and does not know now how to account for it. He did not know when he left the farm for two or three days at a time, where he went, but he does not believe he went with anarchists.

The Sister Victoria.—The sister Victoria is a good looking girl with light hair, fair skin, hazel eyes, and generally well developed. Somewhat flattened nose. She described her brother as "rather lazy but a nice boy." That he could not get along with his stepmother; they were always nagging each other, and while he never swore he came pretty near it in talking with her. He did not drink or smoke very much. He liked to be by himself. He would eat and sleep most of the time. Would not eat with the rest of the family. Was very fond of gunning but was unable to do heavy work on account of his health. Did not like to be around with other people.

Uncle Michael and Aunt.—Leon's uncle Michael and his aunt say they looked on him as an "old woman" or "grandmother" and that they called him so because of his habit of falling asleep and being at times rather stupid.

His friends, Mr. and Mrs. Dryer.—Dryer bought out a saloon of Paul Czolgosz. He and his wife probably saw more of Leon than any one else before he moved into the country, because he made frequent visits to their place. They only knew

of his having one chum who worked in the same factory with him. Leon would go into the saloon after his work, wash up and sit down and read the paper which he was always anxious to get. Would sit by himself in the corner and watch the other people play cards. Would not play often himself and if he lost anything he would stop playing. Never heard him swear or use profane language. Never saw him lose his temper though he was plagued about the girls whom he never seemed to have the courage to speak to. He was very particular about his shoes, brushing them when he came in. He would often fall asleep, wake up and sit around and perhaps fall asleep again. Mrs. Dryer said it seemed so strange to her that he could do such a violent act. When he was in the saloon he would never even kill a fly; he would brush them off and perhaps catch them and let them go again, but never kill one. He was especially careful with his money, never spending any unless obliged to. He never would take more than one drink of liquor at a time. Sometimes they would make remarks to him about not spending his money, for instance, they would say, "Oh, come on, blow yourself off," but he would answer, "No, I have use for my money." He was never jolly. Mr. Dryer describes him as rather "stupid and dull-like." Mrs. Dryer says "kind of broke-down like."

About four years ago he said he had left the wire works because he was sick, and certainly for several months to their knowledge he was always taking medicine, having a bottle in his pocket and a box of pills. He would never talk to strangers and never said much to any body. When he was not at work he would sometimes sit all day in the saloon "thinking-like," reading the paper and sleeping.

Leon was never in any row and he would not take sides with any one who was in a row. Mrs. Dryer said she had urged Leon many times to eat with them but only once had he consented after a great deal of persuasion; then he sat at the table and ate very little.

EMPLOYMENT IN THE WIRE MILLS.

For seven years or up to '98 Czolgosz was employed in wire mills in Cleveland and we had an interesting interview with sev-

eral of the men with whom he had worked. He was known by the name of Nieman, which name he adopted for purposes of convenience as is the custom of many Poles. His fellow workmen saw him daily during this long period of time and the foreman testified that he was a very steady worker; never gave any trouble, never quarrelled or had any disputes with other workmen, but was quiet and cheerful. He carried his dinner to the mill as the other men did but never had much to say to them. He sat around and kept to himself though he showed no desire to avoid the other men. The foreman said that he was as good a boy as he ever had, and "he never could have done such a thing." His occupation was that of wire winder which necessitated a fair amount of intelligence. The foreman pointed out to me on the time books that Czolgosz worked steadily without a break, and while the other men had a good many fines, he had very few and for such little things as letting the wire run slack, etc. He was engaged in '91 and quit work in August, '98, as the books show. When he left the foreman said he simply came up and said he was going to quit. That he was going into the country for his health; that he was not well, and it was a surprise to all of them.

ORDER OF KNIGHTS OF THE GOLDEN EAGLE SOCIETY.

The only association which I have evidence that Czolgosz was a member of is called by the above name. It bears the best reputation. "The proclaimed purpose of its founders and the primary objects of the order are to promote the principles of true benevolence by associating its members together for the purpose of mutual relief against the trials and difficulties attending sickness, distress and death so far as they can be mitigated by sympathy and pecuniary assistance; to care for and protect the widows and orphans; to assist those out of employment and to encourage each other in business; to ameliorate the condition of humanity in every possible manner; to stimulate moral and mental culture and by wholesome precepts, fraternal counsel and social intercourse, to elevate and advance its membership toward a higher and nobler life; and for the inculcation and dissemination of the principles of charity and benevolence as taught by the order. Its foundation is the Bible and it has for its motto

fidelity, valor and humanity. Any person to become a member must be of good moral character and a law-abiding resident of the country in which he lives, a believer in a Supreme Being and the Christian faith." It also states as its purpose, besides building up the highest type of character, that it is to stand as the "champion, advocate and auxiliary for the best interest of the church, the state and people."

It was into this organization with such high and patriotic aims that Czolgosz was elected while working in the wire mills. Among its prominent members were some of his fellow workmen and it was through his association with them that he was elected into it. The foreman thought it a little strange as he had been a Catholic and the members were above him socially, for him to desire to associate with them. However, his fellow workmen saw no reason why he should not belong to the order and he was therefore elected, which in the circumstances was something of an honor. The secretary told me that joining the society and taking the oath was the same as renouncing the authority of the Catholic church.

The proof of the great interest that Czolgosz took in the Golden Eagle as well as his connection with it up to the time of his crime is shown by two of the three letters of which I present copies. In the one dated August 11, 1899, he speaks of not being able to work, and in the other he writes more fully as follows (Plate IX):

"Cleveland Ohio July 31st 1901

Mr John Gunther
Dear Sir & Brother
inclosed you will find One Dollar to pay my Lodge dues in June I gave one Dollar to brother George coonish to pay my Assessed on the death of our late Brother David Jones and I was up the hall That night and i gave one Dollar to our brother at the first guard Room to pay my Lodge dues and I said to him that you have got my book

brother Gunder will you send my book to me at my cost and send me the Pass words if you can do so"

At various times after he left the mill in '98 he furnished to the secretary physician's certificates that he was out of health and received for at least sixteen weeks sick benefits. He did not go often to the meetings, though he went once in a while,

and not only was a member in good standing but his fellow members that I saw expressed a very high opinion of him.

THE CONNECTION OF CZOLGOSZ WITH ANARCHISTS.

Mr. Corner, Superintendent of Police in Cleveland, who has made a most careful investigation, stated positively to me that he had been unable to connect Czolgosz with anarchists or any society of anarchists. Great weight must be attached to what Mr. Corner says, not only because he is superintendent of police in the city where Czolgosz had lived for a long time, but also because he is one of the best detectives in the country and has looked into the matter very carefully.

Having learned that Czolgosz had had interviews with Mr. Emil Schilling, a well-known anarchist of Cleveland, I had two long talks with him. He says that on May 19, 1901, Czolgosz or Nieman as he then called himself, came to him saying he was sent by his friend Hauser, of whom he asked where he could find an anarchist or anarchists. He then talked about his ideas. Said he had belonged to the Sila Club (?), but did not belong now to that or the Social Labor party because they quarrelled a year before. He talked about capitalists and laboring people in a way that Schilling called revolutionary.

Schilling gave him a book to read about the "Chicago Martyrs" and some numbers of the *Free Society*, the organ of the anarchists; also took him home to dinner where he was like one of the family and sat down and ate the same as any one, but kept very quiet. "I thought he was all right this time when he called on me. He did not talk German but English. Talked about his farm and said he lived in Bedford on a farm with his brother. He came to see me again in about three weeks and said he had read of anarchists forming plots and of secret meetings. I said we do not do any plotting. He then asked if anarchists did not organize to act; that is if anybody do something against a king or officer and you was an anarchist, would you say you was an anarchist. I told him yes, for every one knew I was an anarchist. When I answered him he was always laughing at my answers as if he either felt superior or had formed a plan and was putting out a feeler.

"I think that Nieman wanted to be smart enough to find out

something as a secret detective and I think he was not smart enough to do what he wanted. I think he was very ignorant. He asked his questions in a very quick way, such as, 'say, have you any secret societies. I hear the anarchists are plotting something like Breschi; the man was selected by the comrades to do the deed that was done.' I asked him, 'where did you read that?' he answered, 'in some capitalist paper.' 'Well,' I said, 'you did not read it in any anarchist paper.'

"During his second visit he came at a time I was eating my supper. I told him to sit down and wait till I was through eating supper. He then handed me the book I gave him to read the first time he called. I asked him how he liked it; he said he did not read it; did not have time. This made me mad and I was suspicious of him. After supper we went out. He refused beer when I invited him to drink but turned round and offered me a cigar. I told him to smoke it himself. He said he never smoked. On our way home I again asked him to have some beer and he said he did not care to drink. Finally he consented to take a glass of pop and he then went home. After his second visit I visited Hauser and asked him about Nieman. He told me he was a good and active member of the Polish Socialist Society of the labor party but that his name was not Fred. Nieman and he had forgotten his real name. I then told him my suspicions and Hauser said to watch out if I thought so.

"Nieman came again about a week later and only remained with me about an hour. He talked with me and said he was tired of life. Referred to his own affairs and said his stepmother abused him. When asked if his father would not protect him he said no, his father had not his own will but was bound by the will of his stepmother. I did not tell him my suspicions; I wanted him to come once or twice more when I would have settled with him; when I would tell him what I think, and not to come again.

"The first two times he called he had on his everyday clothes; the last two times he had on his Sunday clothes. He was awful particular about the care for his body; his clothes always nice and clean. He had a red complexion; was healthy looking; a round face. I see on his hands he did not work much.

"The third time he call he ask me for a letter of introduc-

tion to Emma Goldman, and then told me he heard her speak in Cleveland in May. She was then in Chicago and I told him he could meet her himself, that I never introduce any one by letter. I told him he could say to her, I have heard you speak in Cleveland, etc. He said, 'I go to Chicago.' Said he would like to see her where she is. He had heard her talk; her speech had influence him; please him; he was taken in. Her speech took him; he talked much of her and wanted her acquaintance; wanted to meet her, but I could not introduce him. She was here only two days.

"The fourth and last time he came was in August. I was just reading a letter from Isaak of Chicago asking about this man Nieman. He said he was a friend of mine, when a knock came on the door and in walked Nieman. I was then suspicious and thought the letter might have been opened in post. I put it in my pocket and told him to sit down. I asked him where he was all these two months. He said he was working in Akron in a cheese factory and then laughed. I thought as I had catched him in a lie I would give him a chance once or twice more. We took a walk with a neighbor, a good man and friend of mine. Three of us walked along the road and old man and me talked business and Nieman did not say anything at all. When we came back to the house he seemed tired and went home. I asked him where he was going. He said, 'may-be Detroit, may-be Buffalo.'

"In Chicago he ask Isaak the same questions he ask me and wanted money. Said he would remain in Chicago two or three weeks if he had money but that his family was poor and he could not remain without the money. They told him they had no money but could give him something to eat. He seemed to be disgusted and left right away.

"Two comrades wanted to take him home for the night and turn his pockets taking any papers or information that they could get as to whether he was a spy or not. In Chicago he must have asked for Emma Goldman. He met her on the wharf as she was leaving on the boat. Isaak and some other comrades were there to bid her good-bye. He introduced himself to Emma as a socialist from Cleveland; he had heard her speak and was a friend of mine. Then Emma turned round and

introduced him to Isaak and asked him if he was an anarchist. He said no, he was a socialist. Then he said he had not read any anarchist literature but the *Free Society*. They then walked toward the hall and he asked his questions. All the comrades had their suspicions of him right away. Isaak wrote me asking about him, and he would then tell me more, saying to write him. I wrote him that I doubted Nieman's honesty. Isaak then wrote me just what I thought and I wrote him back if you think so you ought to give it to the public in the *Free Society* and he did a week before McKinley was shot.

"Czolgosz seemed to be normal and sound as the average man; he might be excused as ignorant, not educated, or as I had thought, a spy, a bad person. He was consistent in his tactics; he did not give himself away. He was not against the President but against the party as he said the last minutes, and we thought from his education he thought he could not leave the world without doing anything. After he done it I assume he plan to do it some months before he done it and only waited a good chance and hoped to get some help from friends."

Schilling says Nieman told him things were getting worse and worse; more strikes and they were getting more brutal against the strikers and that something must be done. "Then I did not think he had a plan; afterward I did."

Under date of August 19, 1902, Mr. Abram Isaak writes to me as follows: "I wish to state that Miss Goldman was simply introduced to Czolgosz without having any conversation with him. He accompanied her to the depot however, where she introduced him to me. After the train left he talk with me for about 40 minutes.

"His first question was whether he could be introduced into our 'secret meetings.' He had addressed me as 'comrade.' But this question arose my suspicion. After having told him that anarchists had no secret meetings, I asked him whether he call himself an anarchist and whether he had read anarchist literature.

"'No,' he replied, 'I know nothing of anarchism excepting what I know from one speech delivered by Emma Goldman in Cleveland. I am a socialist. For seven years I was a mem-

ber of the socialist party in Cleveland. But since they split I became disgusted with them.'

"Altho' being suspicious I could not help thinking that his eyes and words expressed sincerity. He was rather quiet. But the 'outrages committed by the American government in the Philippine Islands' seemed to trouble his mind. 'It does not harmonize with the teachings in our public schools about our flag,' he said."

As a result of their suspicions Isaak published the following notice in *Free Society*, September 1, 1901:

"Attention."

"The attention of the comrades is called to another spy. He is well dressed, of medium height, rather narrow shouldered, blond, and about twenty-five years of age. Up to the present he has made his appearance in Chicago & Cleveland. In the former place he remained but a short time, while in Cleveland he disappeared when the comrades had confirmed themselves of his identity, & were on the point of exposing him. His demeanor is of the usual sort, pretending to be greatly interested in the cause, asking for names, or soliciting aid for acts of contemplated violence. If this same individual makes his appearance elsewhere, the comrades are warned in advance, & can act accordingly."

A good deal has been said of the lectures by Emma Goldman that Czolgosz heard. Whether or not he heard more than one, I have no means of knowing at present. Isaak says he heard one. This was undoubtedly the one she gave in Cleveland, May 5, 1901. We know that she delivered two lectures in Cleveland on that date, one on "Anarchism" and the other on "The Cause and Effect of Vice." The following is a synopsis of the first as given in the *Cleveland Plain Dealer*, May 6, 1901:

"Men under the present state of society are mere products of circumstances," she said. "Under the galling yoke of government, ecclesiasticism and the bonds of custom and prejudice it is impossible for the individual to work out his own career as he could wish. Anarchism aims at a new and complete freedom. It strives to bring about a freedom which is not only a freedom from within, but also a freedom from without, which will prevent any man having the desire to interfere in any way with the liberty of his neighbor. Vanderbilt says 'I am a free man within myself but the others be damned.' This is not the freedom that we are striving for. We merely desire complete individual liberty and this can never be obtained as long as there is an existing government.

"We do not favor the socialist idea of converting men and women into mere breeding machines under the eye of a paternal government. We go to the opposite extreme and demand the fullest and most complete liberty for each and every person to work out his own salvation and upon any line that he pleases so long as he does not interfere with the happiness of others. The degrading notion of men and women as breeding machines is far from our ideals of life.

"Anarchism has nothing to do with future governments or economic arrangements. We do not favor any particular settlement in this line but merely seek to do away with the present evils. The future will provide for these arrangements after our work has been done. Anarchism deals merely with social arrangements, not with economic arrangements.

"The speaker deprecated the idea that all anarchists were in favor of violence and bomb-throwing. She declared that nothing was further from the principles which they support. She then went on however into a detailed explanation of the different crimes committed by anarchists lately, declaring that the motive was good in each case, and that these actions were merely a matter of temperament. 'Some men were so constituted,' she said, 'that they were unable to stand idly by and see the wrongs that were being endured by their fellow mortals.' She herself did not believe in these methods but she did not think that they should be too severely condemned in view of the high and noble motives which prompted their perpetration. 'We must have education before we can have power,' declared Miss Goldman. 'Some believe that we should first obtain the force and let the intelligence and education come afterwards. Nothing could be more fallacious. If we get the education and intelligence first among the people the power will come to us without a struggle.'"

I have given the newspaper report of Emma Goldman's remarks entire so that as far as possible we may know how incendiary her remarks were. So much weight has been attached to them as the chief means of creating the "sane" state of mind which led to the crime, that the reader should have a chance to judge for himself.

Miss Goldman says in a letter just received from her:

". . . I do not know whether Czolgosz was an anarchist, nor have I the right to say he was not. I have not known him sufficiently to be acquainted with his political views."

HISTORY AFTER LEAVING HIS FAMILY JULY 11, 1901.

It was not until the 11th of July that Czolgosz left Cleveland where he had been with his family, and he did not go to Chicago, as has been claimed, on July 1. On the 14th he wrote

from Fort Wayne, Indiana, to his family (Plate VIII). On the 16th he went to board with a family by the name of Kazmarek at West Seneca, N. Y., where, as nearly as can be ascertained, he remained until nearly the end of August. He told Chief of Police Bull of Buffalo that on the 30th of August he went to Cleveland. Sometime earlier in August he went to Chicago.

At West Seneca he gave his name as Fred. C. Nieman and made his arrangements to have a room and his washing done for $3 a month. As was his custom when living with his own family he took his meals entirely alone. He lived on milk and crackers and sometimes cake, sending out a little boy for the milk, and going into a deserted store in the front of the house and eating entirely alone. He always refused to join the others when invited to do so. He rose usually before 7, washed and dressed himself carefully, then spent his days taking a little walk in the morning or sitting on the piazza reading pamphlets and papers, hiring a little boy to bring the paper in the afternoon which he read very carefully and retired about 10 o'clock each night. He never had any conversation with the family unless he had to, and kept by himself. Two or three times a week he left quite early for Buffalo returning about 10 or 10.30 at night. He said he went so often to attend meetings. He said he worked in the winter and then lived in the summer upon what he then earned. He always dressed up a little better when he went to Buffalo than when he stayed at the house, though he had only one suit and his underclothes were in a little canvas box or "telescope" as it is usually called. He never talked about himself except as just mentioned. He left there suddenly, hiring a little boy to carry his trunk. When asked where he was going he said, "May-be Detroit, Baltimore, Pittsburg, Cleveland." He seemed in fairly good spirits when he went away. He could not pay the last instalment of his bill but left a revolver, as security.

August 31, he wanted a room with his washing done at Nowak's in Buffalo. Nowak asked for a recommendation and he gave a satisfactory one. He said his name was Fred. Nieman. Nowak said he rarely drank, never swore, smoked in moderation and stayed in his room a good deal when people were about to talk to him. The Nowaks thought he must be

a visitor to the fair. He dressed so neatly they decided he must be a waiter or a barber. He left in the morning about 7 and returned about 10.30 each night, retiring immediately. They never knew where he got his meals. Only one time he came into the saloon and sat down. This was a Sunday evening when a good many people were about. He said all the priests talked about was money.

MEDICAL EXPERT EXAMINATION IN BUFFALO.

On the part of the government this was made by Drs. Fowler, Crego and Putnam.[1] The following is an extract from their examination:

His height is 5 feet 7⅝ths inches, age 28, weight when in Buffalo 136 pounds. General appearance that of a person in good health. Complexion fair. Pulse and temperature normal. Tongue clean, skin moist and in excellent condition. Pupils normal and react to light, reflexes normal, never had any serious illness. He had a common school education, reads and writes well. Does not drink to excess, although drinks beer about every day, uses tobacco moderately, eats well, bowels regular. Shape of his head normal as shown by the diagram obtained by General Bull, Superintendent of Police with a hatter's impress.

In the first interview on Sept. 7th, he said:

"I don't believe in the Republican form of government, and I don't believe we should have any rulers. It is right to kill them. I had that idea when I shot the President, and that is why I was there. I planned killing the President 3 or 4 days ago after I came to Buffalo. Something I read in the *Free Society* suggested the idea. I thought it would be a good thing for the country to kill the President. When I got to the grounds I waited for the President to go into the Temple. I did not see him go in but some one told me he had gone in. My gun was in my right pocket with a handkerchief over it. I put my hand in my pocket after I got in the door; took out the gun, and wrapped the handkerchief over my hand. I carried it in that way in the row until I got to the President; no one saw me do it. I did not shake hands with him. When I shot him I fully intended to kill him. I shot twice. I don't know if I would have shot again. I did not want to shoot him at the Falls; it was my plan from the beginning to shoot him at the Temple. I read in the paper that he would have a public reception. I know other men who believe what I do, that it would be a good thing to kill the President and to

[1] Official Report of the Experts for the People in the Case of the People vs. Leon F. Czolgosz.

have no rulers. I have heard that at the meetings in public halls. I heard quite a lot of people talk like that. Emma Goldman was the last one I heard. She said she did not believe in government or in rulers. She said a good deal more. I don't remember all she said. My family does not believe as I do. I paid $4.50 for my gun. After I shot twice they knocked me down and trampled on me. Somebody hit me in the face. I said to the officer that brought me down, 'I done my duty.' I don't believe in voting; it is against my principles. I am an anarchist. I don't believe in marriage. I believe in free love. I fully understood what I was doing when I shot the President. I realized that I was sacrificing my life. I am willing to take the consequences. I have always been a good worker. I worked in a wire mill and could always do as much work as the next man. I saved three or four hundred dollars in five or six years. I know what will happen to me,—if the President dies I will be hung. I want to say to be published—'I killed President McKinley because I done my duty. I don't believe in one man having so much service, and another man should have none.'"

At the Sept. 8th interview he said he had heard Emma Goldman lecture, and had also heard lectures on free love by an exponent of that doctrine. He had left the church 5 years ago because as he said, he "didn't like their style." He had attended a meeting of the anarchists about six weeks ago and also in July. Had met a man in Chicago about ten days ago who was an anarchist and talked with him.[6]

The Friday before the commission of this crime he had spent in Cleveland, leaving Buffalo, where he had been for two or three weeks, and going to Cleveland. "Just went there to look around and buy a paper." The circle he belonged to had no name. They called themselves Anarchists. . . . During this examination the prisoner was very indignant because his clothing was soiled at the time of arrest, and he had not had an opportunity to care for his clothing and person as he wished. . . . He said he would have slept well last night but for the noise of people walking about. He heard several drunken people brought into the station at night. Said he felt no remorse for the crime he had committed. Said he supposed he would be punished, but every man had a chance on trial; that perhaps he wouldn't be so badly punished after all. His pulse on this occasion was 72—temperature normal; not nervous or excited.

On Sept. 9th, we observed a marked change in his readiness to answer questions. Many of the questions he refused to answer. He denied that he had killed the President or meant to kill him. He seemed more on his guard. He persisted in this course until nearly to the end of the interview, then he said, "I am glad I did it."

At all subsequent interviews he declined to discuss the crime or any of its details with the experts but would talk about his

[6] This may possibly have been the anarchist Isaak.

general condition, his meals and sleep and other subjects not relating to the crime. From the daily reports of his keepers at Buffalo they noted that he talked freely; that his appetite was good; that he enjoyed the walks he took in the corridor of the jail. He told his guards he would not talk with his lawyers because he did not believe in them and did not want them.

The experts conclude that Czolgosz was sane as a result of frequent examinations, of the reports of his watchers in the jail, of his behavior in court during the trial and at the time he received his sentence, and then they say that they came to this conclusion from the history of his life as it came from him. He was sober, industrious and law-abiding and until he was 21 years of age he was as others in his class, a believer in the government of his country and the religion of his fathers. "After he cast his first vote he made the acquaintance of anarchist leaders who invited him to their meetings. He was a good listener and in a short time he adopted their theories. He was consistent in his adherence to anarchy. He did not believe in government, therefore refused to vote. He did not believe in marriage because he did not believe in law. He killed the President because he was a ruler. Czolgosz believed as he was taught that all rulers are tyrants and that to kill a ruler would benefit the people. He refused a lawyer because he did not believe in law, lawyers or courts."

If we may judge by the statement made in the report of one of the experts for the defense, the examination by the latter was necessarily somewhat hurried.[1] This states: "It should be said that owing to the limited time, two days, at our disposal prior to the trial, and the fact that his family relatives resided in a distant State and were not accessible for interrogation, that we were unable to obtain the history of his heredity beyond what he himself gave us." The following is stated in this report in addition to what has already been referred to in the official report, "There were no tremors or twitching of the facial muscles, tongue or hands. The pulse and temperature and skin were

[1] The Trial, Execution, Autopsy and Mental Status of Leon F. Czolgosz, alias Fred Nieman, Assassin of President McKinley," by Carlos F. MacDonald, A. M., M. D., New York.

Orrage Ohio August 11th 99

To Forrest City Castle

#22 Knights of the Golden Eagle

Sir Knight and Brothers.

I am under Dr. J. Keller
treatment and not able to work.

Brother Cull was visiting
me this week.

Yours Truly -

Fred C. Niman

Orrage Ohio

P. O.

Warrensville Ohio

July 14. 1901

Ill Dear Sir I am riting
a few lines to you about me
I am on the road to west
it is hard for me to tell you
where will i be so i can write
(days
hoping this will find you
well as it leaves me at
present i remain yours.

Leon F Czolgosz.

Cleveland Ohio July 28th 1901

Mr. John Grinder.

Dear Sir & Brother
inclosed you will find One
Dollar. to pay my Lodge dues
in June I gave one Dollar. to
brother George coonish to pay my
Assessed on the death of our late
Brother David Jones.
and I was up the hall that night
and I gave one Dollar to our bro-
-ther at the first guard Room
to pay my Lodge dues and I said
to him that I am have got my book.

brother Grinder will you send
my book to me at my cost
and send me the Pass words
if you can do so.

I left cleveland thursday July 11th

July 14. 1901

Ill Dear Sir I am writing
a few lines to you about me
I am on the road to west
it is hard for me to tell you
where will I be so I can write
(dyar
hoping this will find you
well as it leaves me at
present I remain yours.

Leon F Czolgosz.

Cleveland Ohio July 30th 1901

Mr. John Grinder.

Dear Sir & Brother
inclosed you will find One
Dollar. to pay my Lodge dues
in June I gave one Dollar. to
brother George coonish to pay my
Assessed on the death of our late
Brother David Jones.
and I was up the hall that night
and I gave one Dollar to our bro-
-ther at the first guard Room
to pay my Lodge dues and I said
to him that I am have got my book.

brother Grinder will you send
my book to me at my cost
and send me the Pass words
if you can do so.

I left cleveland thursday July 11th

I am working here I will stay
here for some time,
and the street car fair from
here to Buffalo is five 15 cents
Hoping this letter will find
you well as it leave me at
present
I remain yours.

Fred C. Nixen

West. Seneca
P. O.
Erie Co.
New York Erie Co.

normal as also were the special senses, knee reflexes, coördinating powers and the sensory and motor functions. Finally a careful inspection of the entire visible body failed to reveal the presence of any of the so-called 'stigmata of degeneration.' The almost perfect symmetrical development—especially of the head and face—is a noteworthy feature in Czolgosz's case. Although had deviations been found the fact would have had little weight as tending to show mental disease or degeneracy as marked asymmetries, both cranial and facial, are frequently observed in persons who are quite sane and above the average in mental capacity."

To this expert he made similar statements apparently to those he made to the other experts. He said, "I planned to kill the President three or four days after I came to Buffalo. I do not believe in the Republican form of government and I do not believe we should have any rulers. I had that idea when I shot the President and that is why I was there." This expert made another examination with the physician of Auburn prison on the evening before his execution and he then found nothing either in his mental or physical condition which tended to alter his opinion. At this time Czolgosz said in explanation of his abandonment of his religious faith and his rejection of the services of a priest, "I would like the American people to know that I have no use for priests. My family are all Catholics and used to go to church until the hard times of 1893. We had been taught by the priests that if we would pray God would help us along but it did no good and it did not help us, and we stopped going to church at that time." He also said at this interview, "McKinley was going around the country shouting prosperity when there was no prosperity for the poor man. I am not afraid to die. We all have to die some time."

HISTORY AFTER THE CRIME.

Czolgosz talked freely with Chief of Police Bull of Buffalo immediately after his arrest, but not until he had had some food given him to eat when he was pleasant and willing to talk. He said he killed the President and was glad he did so. Was asked if he knew the enormity of his crime and its results and he said

he did. That he knew people sometimes escaped being hanged and he might. He said he came to Buffalo on August 31. He was with the President at Niagara and had an opportunity to shoot him then. He was much disturbed by his clothing being so soiled and one of the first things he asked was that he be allowed to wash and change his clothing. This was denied him until later, when he was told one of the guards would give him clean linen, if he would furnish the money, which he did, giving all he had on him which was $1. When the guard returned with the articles of clothing he disputed the change, but when they told him the cost of each, he said, "Oh, that's all right; let it go."

During the first interview and often at other times during his stay in Buffalo he would take his handkerchief from his pocket and wind it around his right hand just as he did when he shot the President. Also while walking in his cell sometimes the guards would see him apparently thinking deeply and at the same time wind his pocket handkerchief around his hand again and again. After he was arrested he was asked by the Chief of Police to illustrate how he had put the handkerchief about his hand with the revolver, but he would not do so until he had a clean handkerchief, when he dramatically showed them what he had evidently practised a long time.

Chief Bull said that among other things Czolgosz said he had once been in love with a girl who had gone back on him, since which time he had had nothing to do with women; that he left his home because his step-mother was unkind to him. Chief Bull says he was immaculate about his person and dress, washing and fixing himself up a good deal of the time. He took a little beer and smoked three cigars a day. They were never able to obtain from him any information which would prove where he spent his time from July 1, except such as was given them in Buffalo, and they do not know what he did or where he spent his time when he went away from his boarding places in West Seneca and Buffalo, but at this time thousands of visitors were in the city on account of the fair and it was almost impossible to trace any one particular person.

When he arrived at Auburn prison he was agitated, shook and shivered and trembled, which may have been due to the excite-

ment of arriving, there being a good many people about. After being placed in his cell he made a short statement of his life in which he said he was born in Alpena, Michigan, in 1873, where he stayed until he was five years of age, when he moved to Detroit, where he resided eleven years. Then he went to Natrona, Pennsylvania, near Pittsburg, where he worked in the glass factory for a year and nine months, when he went to Warrensville, Ohio, where he invested his earnings with his family in a farm, and worked on it for a time. It has since been sold, and he resided in Cleveland until July, 1901, when he left there. He also spoke of being in Cleveland first, then going to Warrensville, and returning to Cleveland. He ended his statement by giving the names and ages of the different members of his family. Only on one other occasion would Czolgosz say anything which was of the nature of information about himself, other than declaring that he was an anarchist.

The daily routine in the prison was to rise at seven in the morning and dress and take his breakfast. He had a large appetite. Then he smoked and took exercise. Ate a hearty dinner; smoked after that a pipe and laid down on his cot. After his supper he smoked and then retired. He invariably maintained a stolid silence. He talked with one of the other prisoners only once of the many times he was left alone, and then the remark was of no account. When asked questions he never would answer quickly, but would stop a long time and think carefully. He did this even when the question was of the simplest nature. To one interrogation about his family he waited at the cell door half an hour before he said anything.

On one occasion the warden sent a priest to him and he said he would smash the priest's head. The next day he apologized for making this statement. Once or twice he wanted to see a priest, but as he did not come at once, he later refused. It was thought he might have become suspicious. When asked why he took the name of Nieman, he said because it was his own mother's name. Later he said his own mother's name was Nebock, which in German was Nieman.

The reason he said for taking the alias was that he once "struck" in his own name, and on account of the strike changed it so that he might get work again. He also said he could not

write and though various officials endeavored to get him to write his name he refused to do so. He once asked to have a letter written for him but after dictating a few lines seemed to be much affected and gave it up. On another occasion (not referred to above), he was going to see a priest in his cell but it is supposed he may have been prevented by his brother-in-law Bandowski, so when the priest came he waved him away when he approached, and said if any priest came to his execution he would swear at him, adding, "you see if I don't."

As was stated at the time in the newspapers, Czolgosz wanted to make a speech in public at his execution. This he said to the warden the night before, when the latter went for some reason to his cell. The warden told him he would never have a better opportunity than then, but Czolgosz said he wanted to make his statement in public, before all the people when he was going to the chair. He was told that this would be impossible and he then resumed his sullen almost ugly mood, and refused to talk any more. Just as he reached the platform he started to make, the warden thought, a speech, but was hurried to the chair, the straps placed on his head, face and chin, while he was yet talking, the last sentence being rather mumbled than spoken. This was what he said: "I shot the President because I thought it would help the working people and for the sake of the common people. I am not sorry for my crime." He was then seated in the chair and said, "that is all I have to say." Just as the straps were being adjusted on his chin he mumbled, "I am awfully sorry because I did not see my father." The prison officers were unanimous in their agreement that the nature of Czolgosz was secretive, and all were unable to draw him into conversation or get him to answer questions unless he so decided after mature deliberation.

POST-MORTEM EXAMINATION.

Of the post-mortem examination it may be said that it proves in no way that Czolgosz was not insane. Mr. Spitzka says at the end of his article, "of course it is far more difficult and it is impossible in some cases to establish sanity upon the results of an examination of the brain than it is to prove insanity. It

is well known that some forms of psychosis have little ascertainable anatomical basis, and the assumption has been made that these psychoses depend rather upon circulatory and chemical disturbances."[6] It is a well-known fact that in a large number of cases even after a most thorough microscopical examination such as Mr. Spitzka did not have an opportunity to make, no indications of insanity can be found in individuals who have been for a long period mentally disturbed.

Berkley says very truly, "Even among the organic-degenerative types an absolute pathology—such as is found for example in pneumonia, in which definite clinical symptoms accompany certain pathological states existing in the lung—is very rare."[7] He also says further, "Our main difficulty in this connection lies in the fact that the nerve cell has but few ways of showing in its structures the presence of deteriorative processes."

There might have been a considerable degree of cell-degeneration in the brain of Czolgosz and yet Mr. Spitzka could not have discovered it at the time he made his examination. However well, therefore, the brain anatomy was described at post-mortem, as a matter of necessity it leads to no definite result in determining the question of insanity.

ANALYSIS OF FACTS PRESENTED.

Czolgosz was one of a family of six boys and two girls. A maternal aunt was insane. His father, now living, is a steady, good workman, employed by the city of Cleveland. He is ignorant and dull mentally, and though he has been in this country thirty years knows only a few words of English. He is emotional. His appearance is somewhat abnormal and suggestive of deficient mental development. Two of the brothers seen were somewhat emotional.

The father says, Czolgosz as far as he remembers as a boy, was healthy. He was always quiet and retired and cared to play with few children. As he grew older he was very bashful, and always continued so. He never saw him in company with any girl. In '98 he gave up work because he was ill.

[6] Op. cit.
[7] A Treatise on Mental Disease, by Henry J. Berkley, M. D., p. 51.

The elder brother says that Czolgosz looked "so gone to pieces like and looked so pale" that he advised him to go to the hospital, but he refused and said there was no place in the hospital for poor people. He lived on the farm but he did not do any heavy work unless he was obliged to. He spent his time in doing various small jobs; some of the time hunting. He liked to be by himself doing little but jobbing around and reading or sleeping.

In the spring of 1901 he became restless and wanted to get his money out of the farm. He kept on talking about it until finally he got it in July, and went away. He made frequent trips to Cleveland; why they did not know. When he was asked why he wanted to go away he said because he could not stand it any longer. After he made his arrangements he seemed brighter.

The sister-in-law said that he acted queerly. He said he was sick but she could not see that he was, and "if you said anything to him about his sickness he got mad." He had a cough. Was lazy and would go out under a tree to sleep. His step-mother would try to get him to work but he would not. She did not believe he was sick either. He was always fixing up boxes and wheels and tinkering around. The day he left he went out, taking nothing with him except what he had on his back. He did not want his parents to know he was going. He told the sister-in-law he was going to Kansas, but he told his sister he was going to California for his health.

The brother Joseph said he was always "awful bashful." He was a good mechanic. While he did not look sick he was always taking medicine. He slept well at night. The latter part of the time in the country he read and slept a great deal of the time; it seemed all the time. He did not know where he went when he left the farm for two or three days at a time.

The sister Victoria said he liked to be by himself. He would read and sleep most of the time and was unable to do heavy work on account of his health. His uncle and aunt called him an "old woman" or "grandmother" because of his habit of falling asleep and being at times rather stupid. His friends the Dryers said he would sit by himself in their saloon in a corner watching the others. They never heard him use profane lan-

guage and never saw him lose his temper. He drank very little. Was careful of his money. He would often fall asleep, wake up and sit around and fall asleep again. He was never jolly; rather "stupid and dull-like." He said he left the wire mills because he was sick, and to their knowledge he carried medicine around with him. They sometimes saw him when he was not at work, sit all day in the saloon "thinking-like and reading the paper and sleeping."

Up to August, '98, as we have seen, Czolgosz worked steadily and industriously. He then gave up his work because of his poor health, and from that time he was never able to employ himself at anything steadily. There is a great deal of evidence that he was not well. He had for a long period a cough, took a variety of medicines, consulted several doctors, one of whom gave him certificates to get sick benefits with. He had frequent and peculiar periods of somnolence. What significance we should attach to these frequent periods of somnolence and in some cases stupor, I am hardly prepared to say. (It is possible that they may have been epileptic, and what appeared to be sleep was really an epileptic seizure..) He also spent much time in what was called "dreaming."

In a letter written to Professor H. C. Eyman, a copy of which was sent to me by Dr. Blumer, it is stated that he suffered from catarrh a great deal. His friends said he had spent over $200 in medicines. He used herb tea, castor oil and probably narcotics. He grew some kind of a plant and would dry the leaves in the oven and smoke them in his pipe. His parents said he was a great and deep thinker but he never spoke out what he thought. He spent a great deal of time reading the account of the murder of King Humbert at the time it occurred. The paper was very precious to him as he took it to bed every night.

I wish here to call attention especially to the habit which he formed about his eating. First in this connection we must consider his relation to his step-mother. His feeling against her was very strong as he was constantly having trouble with her. She would ask him to do work which he would refuse and she would either scold him or call him lazy. She did not believe there was anything the matter with him and when he told her that he was going to Kansas she thought it would be a good

thing. Schilling also speaks about his having said he was abused by his step-mother and was tired of life, that his father would not protect him because he was bound by the will of his step-mother. After '99 his feeling became so strong against her that he would not eat with her when she was in the house. Whether or not he was suspicious of her and thought she might do something to injure him by poisoning his food, it is impossible to say. When in the mill he had always taken his dinner with his fellow workmen, and at an earlier period he had taken his meals with the family and with his mother.

He usually cooked his own food and he had the milk put directly in a tin pail after the cows were milked, and drank it alone. The sister-in-law mentions that especially three or four months before he went away he would not eat anything at the table and only took bread and milk; sometimes a little cake. He would take his food up to his room and eat it out of sight. The same thing was true at West Seneca where he stayed the last two weeks in July and most of August. He took his meals entirely by himself, living principally on milk and crackers as he had before. Even if he were invited he refused to join the others.

This habit which Czolgosz formed of not only cooking his food but a large part of the time eating it by himself, often out of sight of others, I believe is of pathological significance which cannot be passed over. Such a habit I believe would be impossible in a healthy-minded young man, and it was not habitual with Czolgosz until sometime after his health broke down and he gave up his work in the mill. To some extent it may have been explained by his relations with his step-mother, but even then it would have been abnormal. His not only cooking but eating it alone was suggestive that he was afraid of contamination or poisoning and altogether in my opinion indicates that it was part of the change which had come about him as the result of his impaired health.

The fact that he took a large amount of food when offered him not only immediately after the crime, but while residing in prison for the period before his execution, must not be forgotten. He still of course ate alone and under what might be called the moral compulsion of his surroundings, and the strain through which he had passed, and the probable relief from the

tension which the crime produced may have occasioned a feeling of exhaustion and a resulting need of increased nutrition.

He was always shy and bashful and afraid of girls. Several of the family had never seen him speak to a girl and he often crossed the road to avoid speaking to them; this habit grew on him. After he broke down in health he was much by himself, not only in his own home but when he was at the saloon of the Dryers where he passed much of his time, and also in other places mentioned. He was not social during these years of illness, being inclined to talk little with others.

There are indications that he was at times extremely restless. He never worked long at any one thing on the farm or elsewhere, though he tried to do light jobs on the place. He was constantly leaving the farm for varying periods from a few hours to several days, for what purpose is largely unexplained, though we can infer that he may on some of these occasions have gone to the meetings of his lodge, or on insurance business as suggested by the brother, and we have a record of his visits to the anarchist Schilling. But he got very restless during the last part of the time before leaving the farm on July 11, and was constantly clamoring for his money which he had put into it.

The changes in disposition which he showed were striking when we contrast his life after he left the mill with that before. As we have seen there was a long period of years during which he worked steadily and practically without a break in a fairly responsible position, being fined for neglect of his work and other things less than the other men, and receiving the commendation not only of his fellow workmen but the foreman as well. These facts I ascertained from the mouths of these men myself in the mill. After his illness began, we find that he did not work steadily at any one thing. That he lost his accustomed activity and energy, grew more shy than he was before and became self-absorbed. Spent much time in dreaming, brooding and sleeping at various hours in the day, when in the ordinary course of events it would not be expected.

With these changes in him came his habit of taking his food alone which was so perverted that it must be characterized at least as abnormal and indicative of a phobia or possible fear

either of contamination or poisoning. While I should at present be far from saying that Czolgosz was in the years referred to, the subject of any specific form of insanity, at the same time the description we get of him suggests to my mind the possibility that he may have been drifting in the direction of dementia precox of the hebephrenic form.

The picture of him during these years, when he committed the crime, and after, fits in, in many particulars, to the description of the mad regicides or magnicides of Régis. He says "they are always restless and dissatisfied and searching for a change. One thing especially distinguishing them is a proneness to mysticism. By that is meant an instinctive tendency to become over-excited in matters of politics or religion. Persons with this tendency often have visions or hear voices. Perhaps the latter in the form of a command from the Almighty. They are given to cogitation and solitude, and spend much time in searching for evidence of unseen agencies which they believe to be influencing their surroundings and actions.

"If this tendency just referred to does not find favorable circumstances it may remain dormant; but if it finds a sufficient element for excitation in the events of the epoch; war; revolutions; dissensions of parties; ultra theories of sects; preaching or inflamed publications in books or journals, it may become dangerous fanaticism.

"Some idea, good or bad, falling on prepared soil soon germinates in an exaggerated manner and whatever sane reason the subject may have possessed up to that date gives way to a sickly ideation which grows to the delusional conviction that he is called on to deal a great blow; sacrifice his life to a just cause, to kill a monarch or dignitary in the name of God, the Fatherland, Liberty, Anarchy, or some analogous principle."

Régis calls attention also to one or two other points which are well illustrated by the Czolgosz case; one is that the typical regicide acts almost always alone in conceiving, preparing and accomplishing his deed. He is what Régis calls a "*solitaire*" by his very nature. Being naturally vain and full of egotism he feels wholly confident that he can unaided accomplish his purpose. Régis also lays stress on the fact that the crime of the regicide is not a sudden or blind act, but on the contrary well

considered and premeditated. "When the act has been decided on the regicide hesitates no more, but goes straight to the end thenceforward with the assurance of a convicted person; proud of his mission and his part, he strikes at his victim in broad daylight, in public in an ostentatious and theatrical manner. Hence he rarely makes use of poison. Frequently he resorts to the use of the dagger, to fire-arms, and, far from fleeing after the crime, he puts himself in evidence as if he had performed some great deed."

By a peculiar coincidence, some of the characteristics of the anarchists as described by the expert for the defense are found by Régis in the typical regicide, which indicates that they have much in common, and this also bears out my own opinion that there was nothing in the conduct of Czolgosz from the time of the crime down to his execution, that was inconsistent with insanity.

I believe that what Régis calls "a proneness to mysticism" existed in Czolgosz. This is partly shown by his brother's testimony in regard to the priests and reading the Bible. Also later by his political views. After his sickness began in '98 he was much given to cogitation and solitude. He found undoubtedly in the events of the epoch, also no doubt in inflamed publications, in books and newspapers, the necessary elements for excitation which resulted in a dangerous fanaticism, and I believe as suggested by Régis in similar instances, that the time came when the sane reason which controlled Czolgosz had given way to sickly ideation and was succeeded by the delusional conviction that he was called on to deal a great blow.

All of the experts who examined Czolgosz said he was a product of anarchy, sane and responsible, and one of them said, he was "in all respects a sane man both legally and medically." As his belief in anarchism was supposed to be the motive for the murderous deed, it is important to consider whether or not this contention is justified by such facts as I have been able to ascertain myself, coupled with those mentioned by the experts in their reports. They admit that he had false beliefs. One of them says a "political delusion," but that being an anarchist this delusion was consistent with the belief of the sect to which he belonged and therefore he was sane. I believe myself, how-

ever, that his statement that he was an anarchist cannot be relied on. In the first place as we know, the Superintendent of Police in Cleveland states definitely that he was not connected with any anarchist organization.

He went to a well-known anarchist in Cleveland to find out what anarchism was, but his behavior was so strange that he not only would not accept him as a "comrade" but he was viewed with suspicion as a spy. In his interviews also with the anarchist in Chicago and in his statement to Emma Goldman, he said that he was a socialist and not an anarchist, and again behaved so strangely that they were not only suspicious of him, but went so far as to warn anarchists against him as a dangerous man. Why he went to these anarchists appears evident; that was to find out if they had made secret plots with the probable purpose of getting assistance from them in some plot of his own.

The inference is almost justifiable that the act which he contemplated, instead of being the result of anarchist teachings led him to turn to anarchism as a convenient means of accomplishing and explaining an end; the germ of the idea that he had a duty to perform, which was to kill the President, being already in his mind.

The only positive evidence existing that Czolgosz was in reality an anarchist depends upon his statements to some of those with whom he was brought in contact after the crime, and the finding of anarchist literature on his person. Books of this nature were found in the room which he had occupied, several of which I have in my possession and have examined. How much these books had influenced him, I cannot say, and in any estimate of him the fact of their existence should have due weight given them, but it does not seem to me to invalidate the position that he was not in the whole sense of the word what could be called an anarchist. He was trying to find out apparently, something about the subject, but as far as going to the anarchists mentioned was concerned it indicated that his purpose was to find out about plots and secret meetings, rather than the theories of anarchism. Even Emma Goldman herself writes me that she was not well enough acquainted with his political views to know whether he was an anarchist or not.

We have reason to suppose that Czolgosz heard at least one lecture of Emma Goldman, and from what Schilling says she must have made an impression on him. We also know that he referred to her after his arrest, but we also know that he had only one brief interview with her, and as far as any direct teaching was concerned there is evidence to the contrary. I have already presented a synopsis of one lecture of hers that Czolgosz possibly heard. We see that she gave very good advice on the one hand and justified deeds of violence that had already been done by anarchists on the other. Still her leading idea was that society was to be reformed by education and not by violence. She is said to have much magnetism and it may be fairly inferred from what Czolgosz said to Chief of Police Bull of Buffalo and to Schilling about her, that it was her person, quite as much as her words, that inspired him.

Lombroso in an interesting paper on "Anarchy" refers to this woman, and says: "Czolgosz in the rare instances in which he departed from silence confessed to having been incited to crime by the speeches of Emma Goldman against the United States form of government."* Lombroso undoubtedly got his information from the newspapers and, as we know, much of what appeared in them could not be relied on; for that reason I have not quoted from them at all in anything I have said in this paper. Lombroso further says: "The speeches of Emma Goldman may well have carried away a man hereditarily predisposed, a fanatic at the same time and given to dark views on the misfortunes of his country." The reason that this writer speaks of the hereditary predisposition of Czolgosz is that "his father had been concerned in the murder or lynching of a contractor who ill-treated his workmen," hence he inherited morbid tendencies. This undoubtedly also was taken from the newspapers. Though in speaking of the father I referred to the matter, I have also said it was contradicted by the son. I believe at present it must be left out of consideration as not being proved.

Lombroso thinks that some of the anarchists are "under the spell of a kind of monomania, or the absolute obsession by a

* "Anarchy; The Status of Anarchy to-day in Europe and the United States, by Cesare Lombroso, published in Everybody's Magazine.

single idea which produces hyper-sensitiveness and makes them excessively susceptible to the influence of others who second their idea to the exclusion of all contrary arguments. Czolgosz was one of these."

If however on the one hand we find little evidence of Czolgosz being an anarchist, we do get important evidence on the other hand that he belonged to a philanthropic organization of standing and character, the order of the Golden Eagle. This was composed of good, hard working American citizens, and the fact that he belonged to it was owing to his being a fellow workman of several of the members. Though he was a Pole and had been a Catholic, and the society was composed of Protestants, such a good opinion was entertained of him that he was duly elected, and continued a member in good standing up to the time of the assassination. He received sick benefits several times on physicians' certificates, and the letter he wrote to the secretary, dated July 31, 1901, shows his connection at that time with the Golden Eagle. In this he says that they will find enclosed one dollar for his lodge dues. That he had given one dollar to pay up the assessment on the death of a late brother, and that he was in the hall in June before and gave another dollar to pay his lodge dues.

His long period of industrious service at the wire mill; his steady and continuous connection with the Golden Eagle; and the years that he was broken down in health are facts which so far have received little attention, but they are salient points in the case as they represent the young man as he actually was. His interest in anarchism appears to have been something of late growth and foreign to the ordinary current of his life, and as far as I have been able to discover played but a small part in it until after the crime, when he said he was an anarchist, and his statements were accepted as a satisfactory explanation. Certainly it was a most extraordinary state of affairs that the man who committed the crime on September 6, and was at once branded as an anarchist, should have been publicly denounced in the leading anarchist publication of the country but five days before as a spy and dangerous character, and not to be trusted by anarchists! Was this a part of a prearranged plot? Were

Schilling and Isaak in league with Czolgosz? I believe there is not a particle of evidence of it.

The letter of July 31 already referred to is important not only for the reason that it shows the connection of Czolgosz with the Golden Eagle, but also that he is quite willing to have his residence known, as he gives his full address. Had he been the anarchist we are told he was, and deeply engaged in anarchist plottings, or had he intended to conceal himself to accomplish his crime, he certainly would not have been so willing to betray his residence.

THE CRIME OF CZOLGOSZ, THE RESULT OF DELUSION.

I believe that he was dominated by a delusion as was stated by the expert for the defense, but it was the delusion of a man of unsound mind and this was much broader than simply his belief that the President was an enemy of the good working people. Not only that but the President was going around the country deceiving the people and shouting prosperity when there was no prosperity for the poor man. Then as he also told Schilling things were getting worse and worse and something must be done; he did not believe in the republican form of government; and there should not be any rulers. For all these reasons he himself was called on to do something or to perform his duty. This was the essence of the delusion, that he had a duty to perform which was to kill the President because he was the enemy of the good working people, and things were getting worse and worse. In going to the anarchists for help he acted under the control of this delusion. He committeed the crime under it, and to the day of his death was absolutely consistent to it.

Speaking from the standpoint of the medical expert, it is to me very difficult to believe that any American citizen of sound mind could plan and execute such a deed as the assasination of the President, and remain impervious to all influences after his arrest, and up to the time of the execution. Human nature, as I look at it, is not constituted to bear the strain of such a situation without weakening at some point. Such conduct is however consistent with insanity. If we take the case of Czolgosz

I find it hard to believe that any other explanation is tenable. We must remember that he was, as far as we can learn, a young man of average health and capacity, who had worked hard for a number of years in one place and was well known to his fellow workmen. That he was peaceful and law-abiding and made in every way such a favorable impression on those associated with him that they made him a member of an association of their own, of high aims from their point of view. Down to the day of the crime his relations with these men, as far as their respect for him was concerned, remained undisturbed. Under these circumstances it is inconceivable that this young man could in his right mind have performed so stupendous a crime. We see, however, that three years before its occurrence he broke down in health so that he was forced to give up his work and was never again able to work continuously for any length of time. He became moody and introspective, passing long periods of time in the days, dreaming and sleeping and cogitating. His habits as far as his daily occupation was concerned were entirely changed; from being active and energetic he became lazy and listless, though at times restless and especially so a few weeks before the crime. We must also remember that he developed a state of antagonism toward a member of the family which became so decided that it was one cause probably of his refusing to eat at the table with her, or even to take food cooked at her hands. That after a while he would only eat food cooked by himself. Much of the time both at his own home and in other places he took it in solitude.

While in this state of impaired health and what appeared to be an abnormal mental condition, the idea that he had a duty to perform developed in his mind, finally becoming so dominating that it culminated in the assassination. If he had said that he was "inspired" or had a "mission" to perform it would not have been any more indicative of insanity than what he did say. The form of words in which a man expresses a delusion is of significance only as indicating what is in the mind. We must remember that this man was an ignorant Pole, who spoke his own language most of the time, and it would have been quite impossible for him to have made use of words that a man like Guiteau, who had a great facility of speech, might have used.

It is said that he evinced no appearance of morbid mental exaltation or of mental weakness or loss of mind, etc. But whether he did or not, of course would be first a question of judgment on the part of the examiner, and secondly a question as to what might be expected under the circumstances.

The real question is whether he was the subject of a delusion which led him to commit the crime and if after having committed it his behavior was consistent with that delusion. Suppose we consider whether or not we have data enough for the establishment of an "insane" delusion or an insane false belief. No better recent study has been made of delusions than that by Mercier.[1] "Delusions," he says, "are beliefs which may or may not have some foundation in experience, in authority or in ordinary testimony, but which however formed are entirely indestructible by any or all of these agents." Mercier points out that in the normal individual a concept is transferred from one category of belief to another and by a logical mode of procedure. "There are, for instance, five degrees or categories that can be distinguished in the cohesion of mental states, viz., the Inconceivable; the Conceivable; the Credible; the Relatively Certain or Fact; the Absolutely Certain or True. The concepts with which we deal may belong to any of these categories and under the influence of experience direct or indirect, our concepts are constantly being transferred from one of these categories to another and up and down the middle category through the most various degrees of likelihood and doubt. In the rational mind transference must be effected by the influence of experience or testimony or authority, but no transference of belief from category to category can normally be effected by the mere interior operation of the mind unaided by commerce with circumstances. . . . . It is the transference of a concept from one category of belief to another by the unaided operation of the mind itself that often occurs in delusions and constitutes delusion."

In the first place we must enquire if the beliefs expressed by Czolgosz and already mentioned as evidences of delusion had any real foundation in experience or authority or ordinary testi-

[1] Psychology, Normal and Morbid, by Charles A. Mercier, London, 1901.

mony. On the contrary, they were, I believe opposed to these things, yet in Czolgosz's mind they appeared not only rational but so imperative that to him they were a coherent belief on which his conduct was based, and were so indestructible that they not only gave him the hardihood to commit the crime, but continued to dominate him down to the moment of his death. There is no question I believe that if he had been allowed to make an ante-mortem statement as he wished, but was unfortunately refused, we should have had still further evidence of the controlling and indestructible nature of the delusion which influenced him from the beginning to the end.

His very last remarks are rather striking and wholly in keeping with what he had said and done from the beginning. "I shot the President because I thought it would help the working people and for the sake of the common people. I am not sorry for my crime." These I am told were his exact words. It is one of the remarkable phenomena of his case that he should have been able under the circumstances when he was sitting in the electric chair about to be executed to so exactly formulate the essence of the delusion which had dominated him. He had done his duty. He had killed the President because he thought it would be a help to the working people and for the sake of the common people, and he was not sorry.

In weighing the state of mind of Czolgosz and determining how far what he said and did give evidence of delusion as defined by Mercier, we must consider his relations not only to the anarchists but also to the Golden Eagle Society. He wanted to be an anarchist and thought he was an anarchist but in a final analysis, in spite of the evidence of the literature found on him and the literature also that was in his room, some of which was of an anarchistic character, his visits to the anarchists and his having been to hear Emma Goldman lecture, he did not really know much about what anarchism was. It was probably a part of his false belief that he thought he was such a thorough-going anarchist, but all of the testimony taken together which must be accepted removes him from the category of genuine anarchists. Then on the other hand his proved connection with the order of the Golden Eagle places him in the category of respectable citizens with avowed aims of the highest kind, and

brings out pretty forcibly his inconsistent mental attitude that at one and the same time he was a law-abiding citizen and an anarchist. We are led to believe that what he thought was contrary to testimony; the outgrowth of beliefs in his own mind and delusional in character.

The more we analyze his history both before and after the crime the more strongly it appears to me that he must have acted under the influence of a colossal delusion, having all the attributes assigned to it by Mercier. I cannot help thinking that this explanation must appeal to thoughtful students of all the evidence on sober reflection, more forcibly than the theory that he was a sane man and his actions consistent with sanity.

The direct circumstances of the crime as committed are always of great significance and it is important for the purpose of this paper to pay brief consideration to this point. I have seen no recent statement on this point which is stronger than that by Dr. Sanderson Christison.[10] He says in reference to the act: "It may first be observed that acts themselves indicate the mental condition of the actors when all the circumstances are known. Up to the age of 28, and after a long record of an exceptionally (abnormally) retiring, peaceful disposition he (Czolgosz) suddenly appears as a great criminal. Had he been sane this act would imply an infraction of the law of normal growth which is logically inconceivable. Such a monstrous conception and impulse as the wanton murder of the President of the United States arising in the mind of so insignificant a citizen without his being either insane or degenerate, could be nothing short of a miracle for the reason that we require like causes to produce like results. To assume that he was sane is to assume that he did a sane act, *i. e.* one based upon facts and having a rational purpose."

There could be no better statement of the relation of Czolgosz to the crime than this. The more reasonable assumption would be that the act was not a sane act because it could not have any reasonable purpose and there could be no facts to justify it. We can, therefore, hardly conceive any conditions which would allow us to assume a priori that the crime could be the crime of

[10] "Epilepsy and Responsibility in the Czolgosz Case. Was the Assassin Sane or Insane?"

a sane man. Here again we can see clearly a good illustration of the correctness of the definition by Mercier. Such an act and for such a purpose as that assigned, because McKinley was the enemy of the working people and the common people, was contrary to experience, authority and testimony, the real facts being quite the other way. The definition would apply equally well to the consequences of the act. As a means of accomplishing the desired end, there was everything against it logically and nothing in its favor, for instead of in any way helping the common people it would do them an injury. It will be seen, therefore, that the difficulties which arise to explain why a sane man could have killed McKinley are almost insurmountable, and in the case of Czolgosz, if he was sane, it appears to me, absolutely so. I believe it highly important to make a very careful study of the crime itself, and by doing this we must become more impressed with the insane reasoning which could have made it possible. In speaking of the circumstances of a crime we must also consider the method. In the case of Czolgosz we have seen that this corresponded well with that of the typical magnicide as described by Régis.

The experts in the official report on Czolgosz say that "he was not a case of paranoia because he did not have systematized delusions reverting to self, because he was in exceptionally good condition and had an unbroken record of good health. His capacity for labor had always been good and equal to that of his fellows." And they think "he was not a degenerate because his skull was symmetrical and his ears did not protrude, nor were they of abnormal size. His palate was not highly arched and psychically he did not have a history of cruelty or perverted tastes and habits." The expert for the defense also says "there was absolutely no evidence of insane delusion, hallucination or illusion. There was none of the morbid mental exaltation or expansiveness of ideas that would suggest mania in any form. None of the morbid mental gloom and despondency of melancholia. None of the weakness of dementia. None of the general mental or motor symptoms that are characteristic of paresis, nor was there anything in his manner, conduct or declarations that would suggest the great vanity or egotism or persecutory ideas or the transformation of personality which is usually characteristic of paranoia, or symptoms of delusional insanity."

That some of these statements do not seem to be in my opinion justified, is apparent from what I have already said, but I wish here to call especial attention to the well-known fact that there are many cases even in hospitals for the insane in which there can be no question of the mental disease, but notwithstanding this, they cannot be assigned with definiteness to any particular category. In the first place there is a great diversity of classifications, so that by different experts different groups of symptoms receive different names; and in the second place, supposing we have well-defined ideas as to what special varieties, groups of well-marked symptoms should be assigned. The case in point may be of such a nature that there is doubt how it should be classified. While it is a convenience to be able to classify cases of insanity, it is not of the importance that we sometimes ascribe to it. The point is to ascertain whether or not the individual has undergone such a change mentally that he presents unmistakable evidences of unsoundness of mind. We can often be sure of that, when no one can say under just what form of disease these evidences should be placed. So in the case of Czolgosz; if it can be proved that he was the subject of delusion and acting under the domination of that delusion committed the crime, while it would be convenient to say he had some specific form of disease, it is not essential in leading us to a decision as to his mental condition.

Another point also is to be mentioned in this connection and this is that the time has come when in my opinion we should give up using the expression, "insane delusion." A so-called "sane delusion" is not in the full sense of the word the same thing as the delusion defined by Mercier. The "sane delusion" or false belief may be the result of superstition, tradition, religious teaching and so on. It is at any rate not opposed fundamentally to the experience of its possessor, or such authority, or evidence as appeal to his judgment. It has developed along lines essentially similar to those described by Mercier and is usually capable of correction or modification by the same method. Such a delusion would be best described by some other term, and the word "delusion" should have the full significance of Mercier's definition.

Where a man is dominated and acts under the control of a

true delusion, he is necessarily as far as that delusion and the resulting acts are concerned, a man of unsound mind, and the qualifying word "insane" I believe had better be dropped, as inaccurate and unscientific.

It will be apparent from a careful perusal of what has already been said what conclusions I think I am justified in arriving at:

1st. I feel that from fuller information than that possessed by those experts who examined Czolgosz after his crime, the opinion then expressed by them cannot be accepted as the final one.

2d. Owing to lack of time it was impossible in the examination referred to, to investigate the early history of Czolgosz. Had this been done some of his statements would have been found to be inaccurate.

3d. He was not in my opinion an anarchist in the true sense of the word, and while anarchist doctrines may have inflamed his mind and been a factor in the crime, it was not the true cause or an adequate explanation.

4th. He had been in ill health for several years, changing from an industrious and apparently fairly normal young man into a sickly, unhealthy and abnormal one.

5th. While in this physical and mental condition of sickliness and abnormality, it is probable that he conceived the idea of performing some great act for the benefit of the common and working people.

6th. This finally developed into a true delusion that it was his duty to kill the President, because he was an enemy of the people, and resulted in the assassination.

7th. His conduct after the crime was not inconsistent with insanity.

8th. His history for some years before the deed; the way in which it was committed and his actions afterward furnish a good illustration of the typical regicide or magnicide as described by Régis.

9th. The post-mortem examination threw no light on his mental condition and would not invalidate the opinion that the existing delusion was the result of disturbed brain action.

10th. Finally, from a study of all the facts that have come to my attention, insanity appears to me the most reasonable and logical explanation of the crime.

LITIGIOUS INSANITY, WITH REPORT OF A CASE.

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Litigious Insanity or "Querulantenwahnsinn" is a variety of paranoia in which the main delusion of the patient is that he is entitled to legal damage and hence is imbued with a fanatical desire to fight the wrong or injury to the last extreme.

This variety of paranoia has been recognized by Krafft-Ebing, Kraepelin, Hitzig, and many others. There is little literature from English writers on the subject.

Berkley in his Treatise on Mental Diseases raises the doubt whether litigious insanity belongs strictly to the paranoias or is not "rather to be classed with ethical imbecilities, as the subjects show more somatic anomalies and a greater degree of intelligence-defect than the average persecuted paranoiac." Hitzig states that the condition may appear like imbecility.

I believe that litigious insanity is not a moral imbecility, for there exists in these patients a keen moral perception as applied to the acts of others, the lack consisting merely in the failure to see the rights of others, owing to the possession of so keen a sense of injury to themselves. This fanatical infatuation leads them to commit or plot serious crimes to gain their ends. But there is often a great or even an unusual degree of intelligence. In common with all paranoiacs, their judgment is faulty, leading them to forget or neglect serious truths in their insane belief that they are victims of a conspiracy. This disease often does not manifest itself until middle life, whereas moral imbecility is shown at an early age; this must be if it is an imbecility. Again, in litigious insanity there is an evolution noticed in the psychosis; the fixed idea gradually dominates the entire life, each event of their career becomes woven into the fabric of their delusions, and there is a steady progression, characteristic of paranoia rather than of imbecility.

In this peculiar form of insanity the patient has some real or fancied grievance. He is perfectly sure that he is aggrieved and is bent on obtaining redress. He is so perfectly sure that he is in the right and that his opponent has no rights in the matter that he confidently brings suit. This presumes a natural self-confidence or conceit as one of the necessary conditions, or soil, for this malady. But the courts fail to look at the dispute with the plaintiff's eyes and he loses his case, or gets what is to him a ridiculously small compensation. This unexpected check is not received with submission, and instead of conceding the possible fairness of the decision, his feeling of certainty is only stimulated, and he at once appeals his case. To satisfy this feeling he argues that his attorney is in league with his opponent. He accuses the judge, witnesses, and others of being improperly influenced; he sees a conspiracy against him. In addition to his first wrong are now added further injuries—personal wrongs done him by all connected with the suit who did not conform in every respect to his wishes. He enters upon a new trial with unabated confidence, having secured new attorneys. He abuses with mouth and pen all who are not of his way of thinking. He carries the case higher and is met with another rebuff. He has been very unreasonable in dealing with his own attorneys. He has, perhaps, abused his own witnesses for some trifling difference of opinion. Any criticism of his own conduct is met with a torrent of abuse or threats couched in strong language. His determination to win permits him to allow of criminal means to gain his end and any attempt to apply legal restraint to himself is met with violent resistance and absolute disregard for the powers that be. He persistently refuses to recognize any authority that interferes with his own liberty or his purpose to down his opponent. Legal processes are usually ignored. Bodily restraint in jail causes violent protest and appeals to the highest authorities. As his cause goes on, other injuries develop after the manner of the hydra-headed monster. Suits are brought against former attorneys or witnesses. His disregard of edicts of the court leads to countersuits, in which he becomes the defendant, and his litigation multiplies. He neglects his business, his family, his personal wants and comforts; his sole thought is for carrying on his

cases, his sole desire to revenge himself upon his enemies, who are rapidly increasing in numbers. He sees the great conspiracy growing. He has become familiar with legal processes and so suspicious of lawyers, physicians, etc., that he often conducts his own case. He writes appeal after appeal, covering reams of foolscap with long arguments, sends them to the President or the King and demands justice for himself and punishment for his enemies—conspirators, as he calls them—at the highest tribunal in the land. With all this experience he has lost no confidence in himself, but is only the more convinced that all about him are venal and devoid of principle.

Such individuals become great nuisances to those in the courts, to mayors, governors, cabinet ministers and rulers, and it not infrequently happens that they are declared insane, develop hallucinations and delusions, and are committed to hospitals, and become later more or less demented.

I desire to report a case which seems to me to properly belong in this class, although differing in some respects from the classical instances.

Mrs. B. was born in 1831. She was one of eight children. She had six sisters and one brother. Her brother died in infancy. One sister is said to have died at the age of nine of "fits." Four sisters married and had families; one remained a spinster and is still living. Her father, who lived to be seventy years of age, was a hard drinker and died of Bright's disease. One paternal aunt had senile mental trouble. Her father's second cousin was insane. A son of her father's cousin died insane at the McLean Hospital.

Her father's family were all well known and several of them were prominent people, so that it was possible to trace each case of insanity on that side. Little or nothing is known of her mother's family.

The patient was a good scholar, but always peculiar. In 1852, when about twenty years of age, she married a German musician and by him had two children.

She was careless in her habits and her husband was very neat and there was some domestic friction on this account. She is believed to have been divorced from her first husband, whom later she referred to as a German count.

In 1862 she married Mr. B. Eight years later Mr. B. legally adopted her older son, whom he liked better than he did the younger boy. The older boy had been educated in Germany by relatives of his father and he returned to America in 1869. The following year, as he remembers, his mother pleasantly requested him not to call her "mother" in public. She always dressed very youthfully and was very anxious to appear younger than her true age.

Her husband was an importer and did a considerable business with a large profit. His business required him to make frequent visits to Europe and his wife often accompanied him. He gave her a generous allowance, $10,000 to $20,000 a year, for her own expenses and she bought many articles of choice bric-a-brac.

Her husband took the adopted son into his store and made him a salesman on a salary. He took him into partnership without a right to a share in the profits.

Early in the seventies Mrs. B. invented a combination bed and bureau, the space beneath the bed-spring being occupied by drawers, on either side, and the middle by a second compartment, in which silver or other valuables were to be concealed and they could be removed only by lifting the mattress from the bed. This was exhibited at the Centennial Exposition in Philadelphia, in 1876, and received an award. She had several made and placed on sale, but, so far as is known, not one was ever sold. She wrote highly commendatory articles for her invention, which she had inserted in the papers. The venture, proving financially a total loss, she refused to pay some of the mechanics for their work and they were compelled to sue her for their claims. These she contested.

Finding the beds could not be sold, she removed them from a wareroom she had rented, stored them in her sister's house and insured them. She then went to see them in company with her single sister who had always done her bidding. The single sister prevented the other sister, the owner of the house, from accompanying Mrs. B. to the attic where the beds were. From what was said and done at that interview the sister in whose house this occurred was satisfied it was Mrs. B.'s intention to burn the beds and collect the insurance, and her son

at once cancelled the insurance and told Mrs. B. of his action. This led to a very bitter feeling on the part of Mrs. B. toward her sister's family. She refused to visit her and did not attend her funeral with the family, but went to the cemetery and kept aloof. She was heard to remark there, "My sister's wretches (meaning her children) killed her and I have two just like them." This bitter feeling she held against this nephew and niece all her life.

Her husband allowed her to attend to the repairs of their dwelling, a house worth about $40,000, and she was in the habit of directing and supervising such work, interfering in details. She would not employ a master mechanic of known reputation to assume charge, but would secure some journeyman by the day and do her own supervising. She invariably became involved in disputes with these workmen and almost never paid them their wages, claiming various excuses. As a consequence the men would place liens on the house and there would be much trouble over small affairs. This line of conduct led to her being sued several times. It is uncertain whether, in acting as she did, she was influenced by motives of economy or whether her conduct was not rather due to her fondness for managing affairs and her conceit in her own superior ability. I feel certain that the last reason is the correct one. Thus, she explained to me at one time, in proof of her ability, that she had devised an original plan for altering houses. This she put into practice in a very fine house on Beacon Hill. She cut all the studs in a plastered partition at floor and ceiling and with bars pinched it along to any desired point. Needless to say, she seriously damaged a very fine house designed by one of the best architects. Good mechanics would not willingly put their hand to such vandalism. In connection with this house there is told a characteristic incident. She told a stranger (a cabman) that she was going to cut it up into a large number of small bedrooms and then import a harem from Constantinople; that, as she owned the house, she could not be driven out except by purchase, and as the house was in one of the most fashionable districts, she could get her own price for it. Her motive in telling this was simply a desire to exhibit her shrewdness, while apparently oblivious of the fact that she was exposing herself as a blackmailer.

She took great pleasure and pride in outwitting others. One could fill a volume with an account of the tricks Mrs. B. played on various people, often, apparently, merely for the pleasure of showing her own cunning. I will give only one illustration. Although she was liberally supplied with money by her husband, she successfully carried out the following ruse to get $1000 from him. She induced him at one time to draw a check for $1000 to a fictitious person who she said was a widow. She then persuaded her unmarried sister to disguise herself as a widow and go with her to the bank, where her husband's account was kept. Here she introduced the sister as the widow and identified her as the person in whose favor the check was drawn. The cashier paid the amount to the sister who gave it to Mrs. B. Probably as a result of this transaction, later Mrs. B. frequently threatened her sister with the State prison if she demurred to do her bidding. Of course it is possible that her sole object was to blackmail her sister.

There are scores of instances in which she made valuable gifts to people in an impulsive way and then demanded that they be returned, claiming either that she had made a mistake or, as was more often the case, that the recipient had stolen them. She made such gifts to members of her family, well-to-do friends, and to servants. She got into serious trouble as the result of one such affair. She gave valuable diamonds, worth thousands, to a man servant. She soon accused him of stealing them and had him arrested and tried. He was acquitted and in turn brought suit. A short time before the case was to be tried the man was set upon at midnight and very severely beaten as he was entering his lodgings. There was little doubt that this was done by the order of our patient. She died before the case for slander against her could be tried.

She at one time ordered foreclosure proceedings to be instituted against a manufacturing plant on which she had loaned money. This was done and the property was bid in at $5000, merely a nominal sum. In the building were several machines owned by another, but she stubbornly refused to allow him to remove them, although there was no valid claim for her position. He sued her and recovered $7500. Her costs made the whole transaction cost $10,000, which her husband paid. The plaintiff had purchased these fixtures for $300.

She gave her son on one day $5000. The next day she told his father that he had stolen the money and his father compelled him to return it. This was probably a trick to prejudice his father against him.

It was for many years her habit to speak in derogatory terms of prominent people. She called many of the most respected and well-known women of America vile names. She also spoke very disparagingly of well-known, respected men. She accused eminent physicians of being seducers, abortionists, murderers. She exceeded even the yellow journalist in specific abuse. She impressed those who knew her as being extremely jealous. She used coarse, even exceedingly vulgar, language at times. She was always egotistical, but, as she grew older, she became absurdly conceited and had an exaggerated opinion of her own ability. She often stated that she herself was a most remarkable woman. She did not hesitate to assert her opinion in legal matters against that of able counsel. She acquired a habit of boasting of her ability, until it appeared as if she herself really believed some of her claims, which were highly suggestive of delusions of grandeur. For example, she claimed to be of noble birth; she even went so far as to state that her origin was the result of an illicit union of her mother with a foreign nobleman.

She said she was educated with young members of a royal family. She claimed to have known intimately the crowned heads of Europe and to have spent five days at Windsor Castle as a guest of Queen Victoria.

She boasted of her artistic ability and claimed that she possessed the true secret of the origin of Shakespeare's plays which she intended to publish when she was relieved from the cares of her cases in the courts.

Later she was anxious to write a book showing up the police.

Her relation to her oldest son must be known to understand her case. In 1889 she first denied that he was her son. From that time she persisted in persecuting and annoying him in many ways. She told a story that he had murdered a man with a small rifle that he had to kill cats with. There were many versions of this story, but she continued to tell it as long as she lived. While he was a partner in her husband's business, she influenced

the latter by extravagant and absurd charges to deny him his rights. She accused this son of theft, lying and murder. It is a curious fact that although these complaints were made, yet his father retained him in the store and let him handle the funds and at the same time allowed his wife to influence him in adjusting the son's compensation. She bribed subordinates in the store to watch her son and report to her all his movements.

Her son became engaged in 1892 and this fact made her very angry and she reviled his fiancée in the strongest terms—telling several people the most outrageous slanders about her. This event led to her driving her son from her house, and he rarely if ever entered it again during her life.

She stated repeatedly that, while she was in Europe, the son had attempted his father's life by pushing him down stairs, whereas, as a matter of fact, the old gentleman had sustained an injury to his leg by slipping on the ice when alone. She also stated that the son had offered $5000 to a maid to poison his father. It is a fact that she herself offered a bribe to a painter to poison her son's coffee.

It will be readily understood now why she estranged every relative and all her social equals. It was a pitiful fact that for several years her confidants were recent acquaintances and, for the most part, utterly unreliable people whom she paid for their services. She found it impossible to keep servants, and therefore had men and sometimes a woman come to her house and do such work as she and they chose. She lived in this way for more than twelve years. She gave away the range and the boiler for heating. She prepared meals very irregularly on oil or gas stoves. Heat was furnished solely by gas logs. The plumbing, as it gave out, was not repaired and for several years there was running water actually only in one room; no hot water anywhere in the house. In October, 1900, I visited her home. The gas had been turned off and the telephone removed. No person other than Mrs. B. remained in the house over night. There were no clean dishes, no facilities for preparing a meal suitably, and the only source of artificial heat was one small oil stove. There was no means of heating water for bathing or for washing dishes. She took several bottles of ale daily and some food, already cooked, was occasionally sent to

the house. She sometimes went out to a café or hotel for a meal. The house was in a filthy condition and in indescribable disorder. Carpets had been unswept for an unknown period. Windows had not been opened in some rooms certainly for many months. Expensive garments, furs, woolens, were alive with moths. She was without the necessary comforts of life. She was extremely active and her entire time was occupied with her matters in the courts. There troubles were multiplying with alarming rapidity. I felt that when a person had reached such a pitiable state a guardianship at least was called for, and so expressed my opinion. After a series of prolonged hearings, this was denied.

She was supposed to be worth over $300,000. Of this there was $125,000 worth of real estate, not one piece of which was occupied or even inhabitable, and the property was not yielding one cent of income. Yet she was supposed to be so shrewd, as illustrated by her acts of cunning, that this important fact was ignored by the courts. In addition to this, there were attachments on her property to the amount of $125,000, some for defamation of character, others placed by attorneys whom she had not paid for services rendered.

She caused her "enemies" or "conspirators" endless trouble by her skill in avoiding writs, etc., served by sheriffs and constables. Her long experience in the courts had made her familiar with the faces of all the sheriffs in the county, and when they called to serve notices, she would refuse to allow them to enter the house or gain an audience with her. Some of them stated their errand and told her that they would leave a paper for her. She would retort, "You know the law requires that you place it in my hand and that I will not let you do."

A temporary guardian was appointed and for a time two women were placed by him in her house, who looked out for her so far as she would allow them. But this procedure was only partially successful. She preferred to deal with an unreliable set of people, who took outrageous advantages of her weaknesses and, it is supposed, obtained large sums from her by various tricks.

Surrounded as she was by dishonest persons, it is not strange that she was suspicious of them. She had made offers to these

people and given them bribes of hundreds of dollars to give false testimony in court, to poison others, even to cause her husband's death. When I say that she believed that these people were capable of such base acts, it is not surprising that she should be unwilling to leave her valuables in the house or that she would refuse at times to take food or drink from them. Such suspicions I did not regard as necessarily being evidences of insanity. She went about with a large bundle of securities tied to her person. She always carried U. S. Government bonds on her person and would use the coupons for cash after she was placed under temporary guardianship and could not avail herself of her bank account.

It is possible that this woman had hallucinations of hearing, but the evidence upon this point was insufficient. It is altogether probable that she suffered from illusions of hearing, for when two people conversed at a distance from her she accused them of making utterly different statements. She would complain in the morning that she had heard strange men in the house during the night and she was in fear of murderous assaults and burglary. That she believed in a conspiracy to injure her is certain. She repeatedly named many prominent professional men—lawyers, including the District Attorney, judges, physicians and others—as bound together to do her harm, to get her property and deprive her of her liberty.

Once when she had a criminal case on hand, she sent a thousand dollar bill to the District Attorney. He returned it with a sharp reprimand and from that day she counted him as her chief enemy and petitioned the Supreme Court for his removal.

After several hearings extending over some months the petition for guardianship was denied and as the opinion is an unusual one I will give it in full.

"After a full consideration of the evidence in this case, I am of the opinion that Mrs. B., though an eccentric woman, is not of unsound mind and does not require a legal guardian. Harmless delusions and an eccentric mode of life do not necessarily indicate legal insanity, nor would this court be justified in depriving a woman of the conduct of her own affairs merely because she was suspicious, litigious, and difficult to deal with.

It is highly significant in this case that the chief petitioner . . . is her son between whom and his mother there has been mutual discord of a serious character for a number of years. This proceeding is the culminating step in a series of litigations, which he has brought against her or the estate of her late husband, his adopting father. But for his animosity toward her it is not probable that her peculiarities would have been brought to public attention. It is therefore decreed that the petition (for guardianship) be dismissed and the respondent be and she hereby is discharged from the temporary guardianship now in force."

The rest of the story of this case is briefly told. She was allowed to live in her house alone without proper care—neglected and improperly fed. She plotted crimes and offered certain individuals $1000 if they would kill any one of three judges (who had decided against her), or for the life of her son's attorney. This state of affairs continued for over two years. Finally the officers on the beat, becoming suspicious that all was not right, had the house opened and she was found dead at the bottom of the elevator well where she had lain for five days. It is a question, which probably will never be cleared up, whether she met her death at the hands of some of the villains with whom she was negotiating to commit murder, or whether she died by accident. At any rate it seems to me conclusive that it was most unfortunate that she was not under suitable restraint and that neglect in this respect was a miscarriage of the law.

On referring to the definition of litigious insanity as given at the beginning of this paper you will remember that litigious insanity is defined as "a form of paranoia in which the main delusion is that the patient is entitled to legal damage and hence is imbued with a fanatical desire to fight the wrong or injury done to the last extreme." In this case the litigation was not begun by the patient, but she repudiated her legal obligations so that the workmen were obliged to get their rights by suing her. Her mental condition was similar to the litigant, who sues insanely, in that she felt she must be right in denying their claims, as her venture had proved a loss which she felt should be shared by the workmen; and she refused to see that they

had a just claim which would be sustained by the courts. This same attitude persisted through life. If she could persuade an attorney to take her case in court without a retainer she would find an excuse for not paying him and he had to sue. Her reputation became so well known that lawyers refused to appear in court until a retainer had been paid. She often had her case entered on the list as "defendant represented *per se*." She would, however, consult some attorney in his office and with advice thus obtained she would conduct her own case in the court room.

She won one case in court which she defended herself. She had given a note in payment for goods and later she claimed that it was a forgery. It is probable that she got a servant to sign her name to the note, which she herself tendered for the goods. She was thus able to prove that the signature was not hers and won the suit on the note.

There are several notes of hers now unpaid, the question being still undecided whether the signature is really hers or not, some of the holders preferring not to fight her in the courts, but to take chances of collecting from the administrators of her estate.

In many cases her attorneys, being honorable men, were obliged to withdraw as her counsel and during the progress of a short case she has had three different attorneys.

Hitzig says that if a person is not able to conduct his affairs in a sane way he is an insane person. Judged by this test, which seems a very practical one, it has seemed to me that this case was that of an insane person.

SANITATION IN ASYLUMS FOR THE INSANE WITH ESPECIAL REFERENCE TO TUBERCULOSIS.

By G. A. MacCALLUM, M. D.

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It is of course to be assumed by the thinking people of a community that if with the aim of caring for or curing those members of their families who are afflicted with mental diseases they assemble them together in a special institution, the patients should at least have nothing to fear from any danger due to lack of the ordinary sanitary precautions. Most of these sanitary precautions are such as lie clearly before the eyes of the officials appointed to the control of asylums and form a part of the every day administrative duties of those officials, but for the combating of certain of the more insidious dangers a detailed medical knowledge is indispensable. I refer of course to the various diseases which may be contracted by one individual from another and which gain a great importance from the mere fact that in such institutions a large number of people are closely housed together and under conditions especially favorable for the spread of disease.

It is remarkable to note how our administrative methods in hospitals and institutions, in combating the extension of epidemics, have been radically altered by the acquisition of precise knowledge of ætiological factors. Even when we do not know the cause in any given case, we can often successfully contend with it by basing our plan of campaign on its analogies with the better known disorders. But, on the other hand, when the advance of bacteriological knowledge has laid before us the actual living cause, has told us all of its life history and its methods of attack, has shown us its weak points and how to take advantage of them to its annihilation—then we can face the enemy with eyes open and with rational tactics. Consider, for example, our present position with regard to diphtheria as

compared with that of ten years ago. The horrors of an outbreak of diphtheria in a children's hospital are almost completely eliminated from the fact that with the first signs we can inoculate with preventive serum all the children exposed and practically cut short the disease at its onset. How different were the results of the efforts at stamping out the plague in the recent Glasgow epidemic from those in previous centuries in England. Even when we cannot actually put our finger on the living germ which causes the disease, we often know enough about it to take advantage of its characteristics and bring about its destruction.

It will be obvious to every one that no matter what the nature of the poison that produces disease in one person, since our aim is to protect others, it is of paramount importance to us to know (1) how the poison gets out of the body of such a sick person; (2) how it is carried from one person to another; and (3) how it gains entrance into the body of the second person. It is equally obvious that if we know these things we can apply rational methods to interfere with the progress of the poison at any one of these three periods and it is with these essential points that we are particularly concerned in sanitation.

It would be far beyond the scope of a brief paper to discuss these subjects with reference to diseases in general, but of their bearing upon one disease, which seems of especial importance to those in charge of asylums, we may speak in some detail.

Before the discovery of the tubercle bacillus great obscurity prevailed as to the real nature of pulmonary consumption. It was in a general way known to be a disease which could probably be communicated to animals and was thought to be in some degree a menace to surrounding persons. With the first sight of the bacillus, however, it became clear that the mechanism of its transmission was a very effective one and that the menace was very real and serious. Whether the import of this discovery was overrated or underestimated remains to be seen.

If we consider tuberculosis in relation to the three important points referred to above we gain a very clear light on the mode of transmission.

First, as to the mode of excretion of the living bacillus from the body of a diseased person, it is plain that this will depend

on the position of the morbid foci. Thus in tuberculous disease situated in the intestinal tract myriads of tubercle bacilli are discharged with the fæces, while in tuberculosis of the genito-urinary tract great numbers are discharged in the urine. Any ordinary sanitary precautions such as are in force in every asylum are, however, sufficient to obviate any danger from these sources. Tuberculosis of various other organs, bones, joints, meninges, etc., where there is no direct communication with the external world, is not followed by a distribution of the bacilli and is not at all dangerous, *per se*, to surrounding persons. But finally, in by far the greater proportion of all cases of tuberculosis there is disease of the respiratory organs and in this lies the danger to others. I need not dwell on the changes which take place in the lungs—suffice it to say that there is a breaking down of lung tissue into a semi-fluid material containing the bacilli in countless myriads, which is constantly being coughed up and expectorated. The enormous importance of this direct discharge of virulent tubercle bacilli must be plain to all. The very fact that coughing is with these patients such a constant occurrence, that they cough in the presence of other people and that too often they are not careful to dispose of the infected material, but spit it about on the floor or ground, shows that the chances of its dissemination are great indeed.

It has always been plain, since we have learned to appreciate the infectious nature of such sputum, that it bore with it a direct menace to surrounding persons. Just how the infectious agent was transmitted, however, had not been quite so clear until recently, after numerous experiments had been instituted to investigate the fate of such expectoration. It has been found that the tubercle bacillus can readily withstand complete drying and when transplanted in this dry state into the body of another person will quickly reawaken and grow, multiply and produce tuberculosis. We can, therefore, appreciate the readiness with which sputum dried on the floor, bedclothing, handkerchiefs, etc., could be diffused into the air and breathed in by some bystander to the production of tuberculosis in his lungs. It has been found that the tubercle bacilli will actually float about in the air if they are dry enough and mixed with dust in a sufficiently fine state of division. Such dust has been experimented

with. Handkerchiefs used by consumptives have been dried and shaken in the air of cages in which guinea-pigs, which are so susceptible to the disease, were kept and the animals have frequently contracted tuberculosis. The percentage of infections has indeed been large and the results leave no doubt as to the great importance of this factor. The sputum, however, must be very thoroughly dried before it can be incorporated with the dust. A very little moisture will suffice to keep the material in such large clumps that it will not float in the air. The handkerchiefs of patients are seldom allowed to dry so completely in practice, but carelessness with regard to floors and furniture and bedding, which results in the complete drying of tuberculous material, must be very common. The scraping of feet over such dried sputum must stir up clouds of infectious dust, although it settles quite rapidly, and the shaking of soiled bedding and clothing must be equally productive of a haze of tubercle bacilli. The dread significance of this is only too evident.

Even more important however, because more insidious, is another method of distribution of the bacilli. Most careful experiments have shown that with every spoken word of an advanced consumptive, with every cough or sneeze, there is exhaled a mist of the finest fluid droplets, which float in the air and carry with them virulent tubercle bacilli. When glass slides have been placed before such people, at a distance of a yard, and stained after a short period of talking and coughing, tubercle bacilli have been demonstrated adhering to them. Again, after such patients have been caused to cough and talk into a large box in which guinea-pigs were kept, many of the animals have contracted tuberculosis. Twenty-five guinea-pigs were taken and placed on a table before tuberculous patients or held in their hands while they coughed toward them—of these six contracted tuberculosis and died.[1]

What a new light these studies seem to throw upon the relations which should be maintained between tuberculous patients and others. No amount of care in the disinfection of sputum will obviate the danger of infection from the cloud of floating

[1] Flügge. Ztschr. für Hygiene, 1898, XXX.

moist bacilli. It is true that if the handkerchief be held closely before the mouth in coughing, the patients may avoid, in part at least, the wide distribution of the cloud; but what can such efforts avail during the weeks or even years through which the disease drags its course? It is true, too, that if one only occasionally approaches such a patient or consistently keeps a distance of over one or two yards the danger is much less, but how can such rules be applied to patients closely housed together as they are in asylums.

Evidently, then, a tuberculous patient is a source of constant danger to those living about him, not only from the fact that any carelessness with his sputum leads to its dissemination, its drying on floors, furniture, etc., and its final pulverization after which it is readily stirred up into the air and breathed into the lungs of other patients, but also from the fact that he constantly exhales an invisible poisonous cloud or mist of finest fluid droplets often laden with tubercle bacilli and easily breathed into the lungs of a healthy person.

All of these risks—sufficiently difficult to combat by hygienic regulations among intelligent sane individuals—become entirely impossible when one is dealing with insane patients crowded together in great numbers.

These conditions explain very well the various modes of occurrence of tuberculosis. Its frequency in crowded tenements, and especially its incidence in groups in one house, the occurrence of abundant cases in old institutions—all point to a transmission from individual to individual. Of course race susceptibility plays an important part, and certain individuals seem from birth inclined to infection with tuberculosis. In other cases, however, the conditions found in a hospital for the insane are of paramount importance, namely, the more or less lowered resistance produced by the disturbances, for the relief of which they primarily enter the institution, and the intimate contact with other patients, some of whom may be sources of tuberculous infection.

One is shocked on entering one of our provincial asylums with these thoughts, to find that with complete disregard of all possible precaution patients far advanced in tuberculosis are sometimes huddled together in crowded wards with other cases.

They are irresponsible and careless, they spit on the floors, drivel on their clothes, use the same forks and spoons with all the rest and thus spread the germs of disease among the other patients. Not only this, they actually taint the air with their poisonous breath, their constant cough drives the bacilli in the air into the faces of their fellow patients, with a pertinacity which, lasting weeks and months, can hardly fail to lead to the infection of patients who might perhaps with impunity approach such consumptives for a short time only.

With our eyes opened to this danger, is it not reprehensible neglect to allow such a state of affairs to continue? Are we not betraying a trust in taking charge of these people, only to expose them to a disease almost as horrible as that for which they have sought our help?

What measures then, we may ask, can be adopted to better the situation? Personal hygiene is of course important—if it were possible with carefully attended spittoons and carefully enforced regulations to nullify all the sputum containing tubercle bacilli, this would be a great step in advance. With insane patients, however, in institutions accommodating many hundreds, it is safe to say that this cannot be done. The control of the second mode of dissemination, the spraying of tuberculous sputum, is even more absolutely impossible under such conditions. The only remedy which can be at all effective is the isolation of the patients, the method which we apply with such rigor to other no more infectious diseases, diseases which are not nearly so extensively fatal, but which we fear because their onset is violent and sudden. Without a doubt isolation is imperative here. This fact is recognized everywhere and sanatoria for tuberculous patients are being erected in many places in this country and have been established for many years in older countries.

Their aim is also isolation of the patient for his own sake. In the case in point this consideration, as well as the welfare of the other patients, is of the greatest importance. There is not a doubt that patients in the early stages of consumption are benefited by the enlargement of their surroundings, the better general hygienic conditions which can be obtained in the more isolated mode of life and especially by an abundant and con-

stant supply of fresh air. The work done by Trudeau abundantly exemplifies this, in the results obtained by the treatment of tuberculous patients in the cottage sanatorium in the Adirondacks.

The remedy for this evil in the asylum seems, therefore, simple enough. There should be built upon a sunny part of the grounds—as distant as possible from the other wards—cottages for the isolation of the tuberculous patients. Each should be large enough to accommodate only a few patients, or if it be possible to build only one for male and one for female patients, they should be so arranged to give the best possible ventilation and exposure to sunlight. Verandas should be provided for the exposure of bedridden patients to the open air and the special attendants should be instructed in the carrying out of the measures of personal hygiene suggested above. The imperative necessity for such means of isolation must be plain to all. The seriousness of the white plague of tuberculosis is so often underestimated, on account of its slow and insidious onset and course, that the most dreadful ravages are permitted when by intelligent sanitation we might at least do much to diminish it.

SOME RESULTS AND POSSIBILITIES IN FAMILY CARE OF THE INSANE IN MASSACHUSETTS.

By OWEN COPP, M. D.,

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Family care of the insane, under control of a State Board, was instituted in Massachusetts in 1885. Its inception was attended with enthusiasm on the part of its advocates, but aroused some little honest doubt and misgiving in the minds of the more conservative. Unfortunately, at the threshold of the undertaking, the State was entering a transition period in the supervision of its insane. Within hardly more than a decade, the general board, overseeing these and kindred interests, was twice reorganized, in the process of differentiating the triple functions of the original Board of Health, Lunacy and Charity, which culminated in the formation of the present State Board of Insanity. Former lay inspection of institutions for the insane gave place to medical inspection. Rotation in the office of inspector was frequent, so that four different executives have been in immediate charge of this department. Finally, the newly created Board of Insanity, which assumed its duties in October, 1898, engrossed in the details of organization and the formulation of a general policy, was not able to give immediate attention to the study and extension of this method of care.

There have been wanting, therefore, that continuity of policy and sustained support which would have been favorable to the best development of the system and an adequate test of its merits. Consequently, the experience of Massachusetts, although of seventeen years' duration, cannot be regarded as complete or conclusive with respect to its scope or value. Under the circumstances, the Board of Insanity is constrained to take a tentative position for the present, but is resolved to afford the system a fair trial, and will be governed in its final judgment by the teachings of actual experience under favorable conditions.

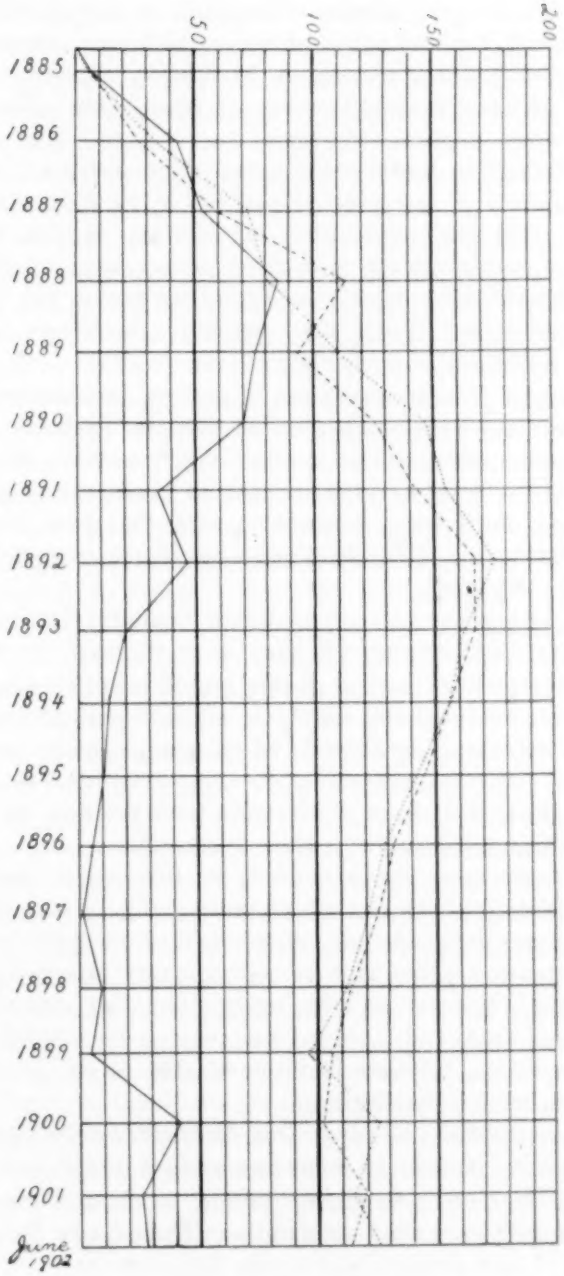
Voluntarily I should not have chosen to present this subject to the Association until such personal experience were available, but, having been requested by our secretary to contribute to its discussion, otherwise initiated, I could not properly withhold a report of the results thus far observed in Massachusetts, the pioneer state in the undertaking in this country.

The Revised Laws, Chapter 87, Sections 102 to 105, provide that the Board of Insanity may place insane persons of the chronic and quiet class at board in suitable families within the Commonwealth, at a cost to the State, for board, not exceeding $3.25 a week for each person; that it shall cause all such State boarders to be visited at least once in three months, and all such municipal boarders at least once in six months; that it shall remove to a better boarding place or an insane hospital any such State ward who may be found upon visitation to be abused, neglected or improperly cared for, and may remove any such municipal ward who may be found to be unsuitably provided with a boarding place. In practice, municipal and State wards receive precisely the same treatment.

The movement went steadily forward during the first five years; settled into inactivity and gradual decline during the next nine years; renewed its advance in 1900, and has since made some progress, although spasmodic and hampered by the lack of sufficient medical assistance to admit of systematic effort, an obstacle now, at length, removed. Its fluctuations since the beginning—August 10, 1885—are shown in the diagram subjoined, the black line representing the number of patients placed out, the red line the daily average number in families, and the blue line the number on October 1, in each hospital year.

It thus appears that patients were put out to board in numbers rapidly increasing until 1888, slowly diminishing until 1890, abruptly falling off until 1893, and thereafter until 1900 remaining nearly stationary, at an average of about eight patients yearly.

Prior to October, 1901, there were placed at board 501 different patients, 99 men and 402 women; the greatest activity being exhibited during the year 1888, when 83 patients were placed; the least activity in 1897, when only four were placed. The average yearly number during the whole period was 34.9.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The daily average number of patients in families during the whole period was 119.43; the largest number at any one time, 179, 32 men and 147 women, in November, 1892; the smallest number, 94, 15 men and 79 women, in April, 1900. The present number is 123, 11 men, 112 women.

The tracings in the above diagram show a distinct tendency to permanency of residence of patients in families. It will be observed that the *accumulation* curve rises parallel with the *placing-out* curve during the active period, and steadily continues upward long after the *placing-out* curve has diverged acutely downward during the inactivity and decline, and persistently maintains a much higher level.

This tendency to accumulation of patients in families is strikingly illustrated by a comparison of five-year periods. During the first quinquennium the average yearly number placed out was 67.27, the daily average number in families, 84.44; during the second, the former dropped to 25.4, the latter ran up to 156.76; during the third, the former ran down to 13.8, and the latter only to 116.95.

Again, of the 117 patients at board October 1, 1901, 53, or 45 per cent, had been out for from 10 to 16 years.

The possession of such a quality would seem to augur well for success, provided the supply of suitable patients and families do not become exhausted and the results justify persistent effort.

What, then, have been the results with relation to institutions, families, patients and public treasury?

From institutions 455 patients were placed out once only, 36 twice, 9 three times and 1 four times. 165, or 32.9 per cent, were returned as unsuitable, of whom 128, or 77.6 per cent, remained permanently; 28 were subsequently placed out once, 8 twice and 1 three times. 15, or 53.5 per cent, succeeded on their second trial, and 4, or 50 per cent on their third. Ultimately, therefore, 146 were found unsuitable, or 29.1 per cent of all patients tried in families.

Their unsuitability, however, was determined only after years of residence in families in many cases; 14 boarded less than a month, 26 from one to three months, 24 from three to six months, and 82 more than six months. The average duration of boarding of such patients was 1 year 10½ months.

Fifty-five patients, or 10.9 per cent, were returned to institutions on account of illness, of whom 25 died there within six months, 5 others within twelve months; a total of 30 dying within a year of their return. 5 only again went out to board.

Thirty-nine patients were returned to institutions because they had been illegally boarded out, and five others for special causes not arising out of their condition.

Altogether 234 patients, or 46.7 per cent, were returned permanently to institutions. Excluding the 44 patients sent back for legal and special reasons independent of their condition and the character of the receiving families, only 190, or 37.9 per cent, were so returned.

The daily insane population of the institutions during sixteen years was 119.43 less than it otherwie would have been, thus making available so much additional space for a quiet, tidy, tractable, healthy and helpful class of patients, such as were boarded out. Inasmuch as the merely residential contingent in our hospitals and asylums should properly (in my judgment) be eliminated, so far as practicable, and the curative, nursing and custodial functions of these institutions emphasized and utilized to the fullest extent, such character of the relief afforded is not material, except in a comparison of the cost of the two kinds of work.

Only rarely the institution is relieved from the wear and tear of a contentious paranoiac, a querulous old person, or the importunities of meddlesome friends. The extra burden imposed by illness, excitement, vicious or untidy habits, necessitating the return of boarders, is thrown upon the hospital. Its ear listens almost exclusively to the tales of tribulation rehearsed on the coming back of the unsuccessful, and seldom hears of the happiness and contentment of the majority, who remain in families. Thus institutional prejudice may have a natural origin, but is softened by fuller knowledge of the family aspects and amenities of the system.

At the outset, families were found by calling attention to the salient features of the system through the public press. Subsequently, they have sought patients without solicitation, by reason of good reports circulating among neighbors and extending to relatives and friends at a distance. Such applications have

been made by more than 500 different families. 83 per cent of those inspected have been approved. We are now nearing a deficiency of good families, probably owing to recent activity following a long period of inertia, but past experience indicates that the demand for patients will grow according to our ability to satisfy it. As to the limit of such demand, no positive prediction can be made, but there has never been a time, for years, when a suitable family did not await any patient selected for such a purpose.

Three hundred and thirteen different families have received patients; 199, or 63.5 per cent, never having more than one at a time; 51, or 16.2 per cent, two; 32, or 10.2 per cent, three; 27, or 8.6 per cent, four; and 4, or 1.3 per cent, five. It is not intended to exceed four.

Three hundred and thirty-six patients, or 67.1 per cent, boarded continuously in one family, 22 less than one month, 36 one to three months, 47 three to six months, 58 six to twelve months, 173, or 51.5 per cent, 1 to 16 years. The average duration of boarding in one family is three years and one month.

One hundred, or 20 per cent, boarded in two families only, 1 less than one month, 5 one to three months, 8 three to six months, 14 six to twelve months, 72, or 72 per cent, one to fifteen years. The average duration of boarding in two families is 4 years and 9 months.

Thirty, or 6 per cent, boarded in three families only, 1 three to six months, 1 six to twelve months, 28, or 93.3 per cent, one to fifteen years. The average duration of boarding in three families is 6 years and 10 months.

Sixteen, or 3.2 per cent, boarded in four families, for an average of 6 years and 6 months; 8 in five families for an average of 10 years and 5 months; 7 in six families for an average of 4 years and 8 months; 2 in seven families for an average of 11 years and 1 month; 2 in nine families for an average of 7 years and 5 months.

Interchange of patients between families occurred about 300 times; 34 per cent because of incompatibility; 5.8 per cent because of dissatisfaction on the part of patients; 8.8 per cent at the desire of the families; 8.8 per cent because friends desired to assume their care; 17 per cent for self-support; 4.4 per cent

for employment; 8.8 per cent because of unfitness of families; 12.2 per cent because of illness, inability, removal or remoteness of families.

Rarely has a family voluntarily and permanently relinquished patients. Four have cared for them continuously for 16 years; four, 15 years; eight, 14 years; four, 13 years; six, 12 years; ten, 11 years; three, 10 years; seven, 9 years; three, 8 years; six, 7 years; six, 6 years, and eleven, 5 years; a total of 72 families, or 23 per cent, who have had them 5 years or more. 241, or 77 per cent, had them less than 5 years. The arrangement has been satisfactory to the families in the great majority of cases.

Generally the families have met our expectations with regard to their fitness and faithfulness; only 15, or 4.8 per cent, have failed to do so; 5 on account of harsh and abusive treatment of patients, 3 for obtaining money under false pretenses from friends of patients, 2 for neglect and depriving of sufficient food, and one each for neglect, neglect and overwork, abuse and overwork, overwork of patients and bad personal reputation of family, and intemperate use of liquor.

Fifty-seven, or 76 per cent, of the present families, which are fairly representative, have an environment where the houses are scattered, the rent is low, the table supplied so far as possible from the farm or garden, and useful employment of patients general. Eighteen, or 24 per cent, are under reverse conditions, with direct outgo larger and board rate correspondingly higher, unless counterbalanced by greater value of patients' help.

As regards vocation, 38.8 per cent are farmers, 28.4 per cent housekeepers (25.4 per cent being widows), 4.5 per cent merchants, 4.5 per cent physicians, 4.5 per cent railroad gate tenders, 1.5 per cent, each, shoemaker, carpenter, mason, gardener, florist, engineer, coal dealer, foreman in saw-mill, canvasser, clerk, postmaster, school teacher and trained nurse.

Eleven, or 14.2 per cent, of the families are related to their patients, only four receiving compensation for their care.

Sixteen, or 20.7 per cent, have young children. In such are placed patients who have no eccentricities of manner and are otherwise unobjectionable. In one instance a child began to

mimic the mannerisms of the patient, who was immediately removed. The welfare of children requires the exclusion of such families, unless special circumstances justify their selection.

No deterioration in the personal character of the families has been detected. On the contrary, frequent visits of inspection and their desire to retain patients have seemed to stimulate them to their best efforts, not only in behalf of their wards but also in their own affairs. The premises gradually assume a neater and more orderly appearance; the house gets into better repair; new furniture appears; the housekeeping improves, and a general air of prosperity and enterprise pervades the home.

Rarely have patients given annoyance in a neighborhood or become objects of adverse comment. A favorable impression has been made upon the community, as a whole.

The motives of families have not been found to be purely philanthropic, yet not less worthy than those of most persons desiring to earn a living in an honorable way. Not infrequently a true attachment has been observed to grow up between patient and family, evidenced by self-sacrifice on the part of the latter. I have sometimes been unable to do what I considered best for the welfare of the patient because of the importunities of the family, as well as of the patient, when delay meant increased care and anxiety to the former, without compensation. Unquestionably, patients do make friends and find homes.

The statutes prescribe that all boarders shall be of the quiet, chronic class; nevertheless, there has been great variety in the patients who have been tried in families. The youngest boarder was 10 years of age when placed; the oldest, 87; the average age, 46.34. Seventy-six were 30 or under; one hundred and ten, 30 to 40; one hundred and thirty-four, 40 to 50; ninety-two, 50 to 60; sixty, 60 to 70; twenty-nine over 70. Eighty-nine, or 17.8 per cent, had reached 60 years or over before going out, and of present boarders, 38, or 32.5 per cent, are of such an age.

Family care presents fewer dangers after middle life, and grows more attractive with advancing years of the patient. Old persons find it less of a change and more acceptable than the institution. However, their feebleness and liability to illness, necessitating expensive medical attendance and extra care, caution to conservatism, unless the benefits derived justify

greater expense. 33.75 per cent of boarders who died in families belonged to this class. Moreover, the compensation of resulting self-support or passage to the care of friends can rarely be expected after the age of 60. Such result followed in only 5.6 per cent of such, compared with 17.5 per cent of all.

Eighty per cent of all boarders were women, who constitute 91 per cent of those now in families. Such marked disparity between the sexes does not seem to have been accidental. Applications for men have been much fewer. Their oversight and associations are not so good. The man of the family is often absent on business, is less considerate and tactful than the woman, and more exacting. They are apt to fall into the company of male hired help, not always of the best character in our small towns. Outdoor work is limitless, as a rule, and over-tasking more likely in consequence. Furthermore, the housewife feels a potent incentive to the care of women patients on account of the ready cash furnished and its scarcity otherwise.

The mental affections of boarders may be classed as manic-depressive insanity, 31.82 per cent; secondary dementia, 27.75 per cent; paranoia, or delusional insanity, 15.31 per cent; primary dementia, 7.41 per cent; senile dementia, 6.46 per cent; recurrent insanity, 3.11 per cent; epileptic insanity, 3.11 per cent; toxic insanity, .96 per cent; congenital mental deficiency, 3.11 per cent; general paralysis, .48 per cent; not insane, .48 per cent.

It may be of interest to know that one general paralytic died in the family after boarding about 18 months; while another was returned to the hospital after about 10 years. Ordinarily, patients afflicted with this disease, or epilepsy, would not be thought suitable for family care.

Chronicity of mental disease of boarders is apparent from length of previous hospital residence and multiple commitment. The former averaged 6 years and 4 months, the longest period being 45 years and 6 months. Multiple commitment had occurred in 26.7 per cent of cases. Therefore, recovery, in the medical sense, could hardly be expected, and, inasmuch as our records do not contain data sufficient to determine such result, it has seemed best to eliminate the term in this discussion.

Mishaps have been infrequent. 16 men, 21 women, or 7.4 per cent of all boarders, eloped prior to October, 1901. 12 men, 12 women, or 64.9 per cent of all elopers, were returned to families without ill adventure; 2 men, 9 women, or 29.7 per cent were committed to institutions; 2 men could not be traced.

An old man of seventy-eight, who wandered away in the winter time, was found the following day with frost-bitten feet and much exhausted, and returned to the hospital, where he died a few weeks later.

Another, becoming disturbed mentally, after boarding out a year, made an assault with billets of wood and a knife, but without doing any injury.

Another, after boarding six months, tried to kiss a girl of thirteen and, being eluded by her, called for a butcher knife and pursued her to a neighbor's house.

Another, suffering from recurrent insanity, committed suicide by hanging within twenty-four hours after arrival at his boarding place.

A woman jumped from a second-story window, in an attempt to elope, fracturing a leg.

A girl of sixteen, after boarding out three years, became pregnant. Suspicion fell upon a tramp encountered on the way to school.

Fifty patients, or 10 per cent, died in families; thirty others, or 6 per cent, died in institutions within a year after their return on account of illness. The causes present no unusual feature, unless a death rate of 14 per cent from pneumonia suggests the danger of exposure.

The pecuniary aspect of the system should be viewed, first, with relation to direct expenditure for maintenance and supervision; second, with relation to the indirect saving from resulting self-support of patients and stimulation of interest and cooperation of friends.

Inasmuch as separate accounts for this department were not kept prior to 1889, direct expenditure can be computed accurately only for the twelve years ending September 30, 1901. Any conclusions based upon such figures will fairly represent, in my judgment, the whole period.

The daily average number of public charges at board from October 1, 1889, to the same date, 1901, was 115.99		
The total expenditure for board of such was.....	$224,591.06	
The average weekly per capita rate of board.....		$3.10
Total cost of extra clothing outside of board rate.....	428.56	
Average weekly per capita cost		0.006
Total cost of medical attendance, extra care, burial expenses, etc.	565.02	
Average weekly per capita cost.....		0.02
Total cost of supervision	21,908.23	
Average weekly per capita cost.....		0.30
Aggregate average weekly per capita expenditure.....		$3.41

Thus it will be seen that the aggregate, direct, public expenditure weekly, per patient, amounted to $3.41.

In our five State hospitals and two independent asylums, for the last hospital year, as figured by the superintendents, the average weekly per capita cost of maintenance was $3.31. There must be added interest on the State's permanent investment in land, buildings and equipment, amounting, at three per cent on $1000 (less than actually expended per capita) to 58 cents, making the total weekly per capita cost of support in institutions $3.89, 47 cents per week greater than the rate of support in families.

Obviously this is not a fair comparison, inasmuch as patients suitable for family care are much less difficult and less expensive to maintain than the average insane population of institutions. Without doubt mere support of the same class is cheaper in institutions than in families.

But this is fairly offset by the indirect saving from resulting self-support of patients and stimulation of interest and co-operation of friends. It appears that 53 boarders, or 10.6 per cent, became self-supporting after boarding an average of two years and two months, the longest interval being nine years and one month. Their previous hospital residence averaged four years and ten months, the longest being twenty-four years and eleven months. Thirty-one, or 58.5 per cent, had lived continuously in institutions for two years or more before boarding; twenty, or 37.7 per cent, for 5 years or more. Nine have since appeared in institutions.

Thirty-five patients, or 7 per cent, passed to the care of friends, after boarding an average of 3 years and 5 months, the longest interval being 12 years and 4 months. The previous hospital residence of such averaged 3 years and 8 months, the longest being 20 years and 7 months. Sixteen, or 45.7 per cent, had lived continuously in institutions for 2 years for more; six, or 17 per cent, for 5 years or more. Two only have since appeared in institutions. Therefore, 88, or 17.6 per cent, of all boarders ceased to be public charges. Without the opportunity to demonstrate their usefulness afforded by boarding out, I believe a large percentage of these would have continued inmates of institutions.

The fairness of such conclusion is confirmed by the subsequent history of 44 patients who were discharged from family care for legal reasons, of whom 12, or 27 per cent, became self-supporting in consequence of their record of usefulness in families where they boarded. Eight, or 18.2 per cent, went back to the same families without public aid.

This work constitutes one of the departments of the Board of Insanity, its general direction falling upon the Executive Officer, assisted by a male visitor of four years' experience as assistant physician in one of our large insane hospitals, and by a woman visitor, a graduate of the training school for nurses connected with the Boston City Hospital.

There is a tendency in its development to the creation of a distinct organization adequate to prosecute a work presenting marked characteristics. There may be some question whether it should continue under the direct management of a State Board, become a separate entity, similar to a hospital in its constitution and relation to such board, or form a part of the functions of each institution.

The present arrangement is the outgrowth of local conditions. Interest in the subject originated with State authorities. The institutions have discovered in it no inducement to add, to their already complex and onerous duties, others involving considerable outgo in expense and effort and contributing little to them in return. Moreover, the movement has not attained such proportions as would render imperative a definite and final decision as to method.

In a State of large area and scattered inhabitants its association with an institution would probably be the best and perhaps the only means of securing adequate supervision. Such connection would be most natural, obviating the necessity of outside intervention in the classification of patients, and would be most economical in administration. Inasmuch as success in this field is not a matter of spontaneous evolution, but demands energy and concert of action, there might arise in a Commonwealth having many institutions some apprehension lest what is everybody's business might prove to be nobody's.

Should its future growth in Massachusetts warrant, separation from the direct functions of the Board of Insanity may be advisable, and would be in harmony with the advisory and supervisory relation traditional in the State between the central board and the interests and institutions within its jurisdiction.

The judicious selection of patients and the proper supervision of families are vital. A wise choice can be made only through acquaintance with both patient and family, and keen insight into their adaptability to each other. To this end, the knowledge possessed by the hospital physician complements that of the medical visitor of the central board. Hence has arisen the present practice of having both together see and examine the patient. In order that the scope of the work and its true relation to the general system of care of the insane may be determined with some definiteness, it is desirable that every patient in institutions should pass under review.

Primarily, an agreement must be reached that the welfare of the patient does not require institutional care, and that the safety of the community will not be endangered. Obscene or vulgar speech, marked eccentricities of manner, immoral tendencies, and other peculiarities which would have a pernicious influence upon the family must exclude a patient. Chronic disease requiring much medical attention, intractability, uncleanly habits, disposition to elope, and intemperate use of alcohol must be eliminated, except for special reasons when adequate safeguards are possible.

A reasonable chance should be taken for a favorable reaction of the patient to a new environment. In the absence of positive objection, a trial is justifiable and enlarges our practical experience.

Such preliminaries having been decided, it is necessary to consult the city or town which supports the patient. Objection from this source is now rare, perhaps owing to the near approach of State support of all the insane. The approval of friends is sought, and their wishes are respected. Sometimes they prefer to have the patient remain in the institution or go home. Should home conditions be found suitable, the patient is boarded there, usually without compensation.

Frequency of visitation should be greater during the early weeks of boarding before patient and family have become adjusted to each other. Regular visits should be made at least once in three months, and as much oftener as occasion may require.

Supervision should be sympathetic and close, but not meddlesome. It should aim to preserve the individuality of the families, to enlighten them in the care of their boarders, and stimulate them to an intelligent self-reliance, so that any ordinary emergency may be met by prompt and appropriate action. Families should not be made over anxious or timid in assuming responsibility; otherwise delay and neglect would occur and so much detail be imposed upon the supervising authority that the system would collapse of its own weight. Action should be immediate, unless prior advice is necessary and delay permissible; report to the central office should follow.

The families should be encouraged to regard and treat their patients as sane persons, and to assume such relations with them as would be natural and in keeping with their bringing up. Any tendency to exclude them from the privileges of the household should be discovered and corrected, or the patients removed. Should prejudice arise on the part of either patient or family, a transfer would be advisable to avoid future trouble.

Vigilance must be exercised to determine when a patient's helpfulness justifies a reduction in board rate or transfer to conditions allowing self-support. Success largely depends upon the tact, good judgment and resourcefulness of the visitors, who meet many difficulties in their dealings with all sorts of people under a great variety of circumstances.

The retrospect of family care in Massachusetts does not clearly reveal its future, but discovers certain possibilities.

Should the question be put whether I would willingly discard it, I should unhesitatingly and emphatically answer, no. The limit of its applicability and the scope of its usefulness cannot now be defined. That it holds a distinctive place and may be made a valued auxiliary in any adequate system of care of the insane, I have no doubt.

The trend of progress seems to lead toward grouping the insane, with varying degrees of separateness and artificial adjustment, into those who need the treatment of a hospital, those who require the custody of an asylum, or those who may be allowed the freedom and occupation of the colony. Family care displaces none of these, but advances a step farther in classification, seeking to restore as many as possible to the natural life of the community, under the safeguard of public supervision, and by timely help, friendly counsel and encouragement, to prevent or delay their relapse.

TENT LIFE FOR THE DEMENTED AND UNCLEANLY.

By ARTHUR B. WRIGHT, M. D.

Manhattan State Hospital, East, Ward's Island.

The experiment of treating the tuberculous insane in tents having proved to be a success, it was decided by Dr. A. E. Macdonald, Superintendent of Manhattan State Hospital, East, to open another camp for filthy and demented patients. Accordingly on July 15, 1901, twenty individuals of that class were selected, 60 per cent of whom were bedridden.

Most of these patients were very stupid and demented, taking only the slightest interest in their welfare and lacking an appreciation of affairs about them. Their weight was taken on admission and about every subsequent three weeks. Eight of the patients weighed less than 100 lbs., the lowest weighing only 88 lbs. At the second weighing, three weeks later, it was noticed that every patient in the camp showed an increase in weight except one and he weighed exactly the same. This patient aged 40 had been an inmate of the hospital for 19 years and was in a condition of terminal dementia, secondary to melancholia. For the last two years he had been very dirty and filthy in his habits, soiling his bed and clothes, and exhibiting no interest whatever in his surroundings. At the next weighing he had gained one pound and was considerably improved in his habits. At the closing of the camp it was noticed that he had gained seven pounds during the three months. He was brighter and more appreciative. While he was still considerably demented, a decided improvement, both physically and mentally, was noted. He had begun to appreciate the necessity of attending to the calls of nature, and at the end of three months, was not what could be called a filthy patient.

Of two paretics, one showed a gain of six pounds and the other a gain of five pounds during the three months. Both

at first were practically bedridden, but at the end of three months were among the most active.

Another remarkable improvement was in a man, 24 years old who had been a patient in the hospital for four years. He was extremely demented for one so young, would sit for hours in one position and could hardly be aroused. He was placed in bed for three days and was then permitted to get up and walk around the camp. He was filthy in his habits and allowed the saliva to drool over his clothes, and it was with the greatest difficulty that he could be kept clean. At the end of three months he showed a gain of twenty pounds, was brighter, talked to members of his family, when they visited him, which had been an utter impossibility at the opening of the camp. The habit of drooling was also stopped. While still demented, he showed an undoubted improvement both physically and mentally, and the benefit of tent life was, in his case, marked.

Another remarkable improvement was in a man 22 years of age. He had been a patient only seven months and on admission was extremely depressed and demented. At the time of admission to the camp, he was dull, and very filthy in his habits. An almost immediate improvement was noted. He began to brighten, became more appreciative and steadily gained in weight. On admission he was greatly emaciated and weighed only 93 pounds. Three weeks later he weighed 101½, a gain of 8½ pounds. During the next three weeks a further improvement was noticed. He weighed 120 pounds, a gain of 18½ pounds over the last register, and of 27 pounds since admission to the camp. At the time of breaking up the camp, this young man had made the remarkable increase in weight of 50 pounds. With the gain physically, a mental improvement, almost as remarkable, was noticed. He was bright and appreciative and was one of the most valuable assistants about the camp, helping the more feeble about and attending to the distribution of the food. He became absolutely clean in his habits and in every respect a well-conducted and orderly person. Suffice it to say that this patient has since been discharged, and undoubtedly is now a useful member of society.

The improvement in those who were formerly filthy, the majority having relapsed into a chronic state, was marked. Treat-

ment in the form of intestinal antisepsis had long before been instituted, but with only temporary effect. In all of the twenty cases there was not a single instance in which there was not improvement. At the end of three months there were only three patients who might be called filthy, and these had shown a marked improvement since admission. The majority had become accustomed to attending to the calls of nature and would voluntarily use the commode chair.

During the warmest weather it was with some difficulty that the more stupid could be gotten out of bed. However, at least half of the patients were gotten up every day and in the best weather 75 per cent were allowed to exercise about the camp. The situation of the camp being in a most pleasant spot on the east bank of the Island, which the sound steamers and excursion boats were continually passing, the patients watched the excursions and listened to the music with interest.

All were eager at meal-times, showing an increased appetite. In some cases it was with difficulty that over-eating was prevented. Many read papers and magazines, a few played games, and all showed a greatly increased interest in their surroundings. During the warm and pleasant weather, the flaps were rolled up so that a free circulation of air was established, and the few who remained in bed were practically out-of-doors.

In regard to the gain in weight I will briefly summarize the figures taken collectively. At the end of the first three weeks every patient in the camp showed an increase in weight except one, and he weighed exactly the same. This patient was the first one alluded to individually in this paper. The highest gain in weight was 8½ lbs. At the next weighing better results were shown. The highest gain was 18½ lbs. over the last record. At the next weighing a still further gain was noticed. Every patient showed an increase over the last register, one gaining 23 lbs., in the three weeks. This last patient showed the remarkable gain of 50 lbs., having weighed only 93 lbs., on admission and scaling 143 lbs., at the close of the camp season. The average gain per patient during the three months was 13⅗ lbs.; the lowest increase was six pounds, the highest fifty pounds.

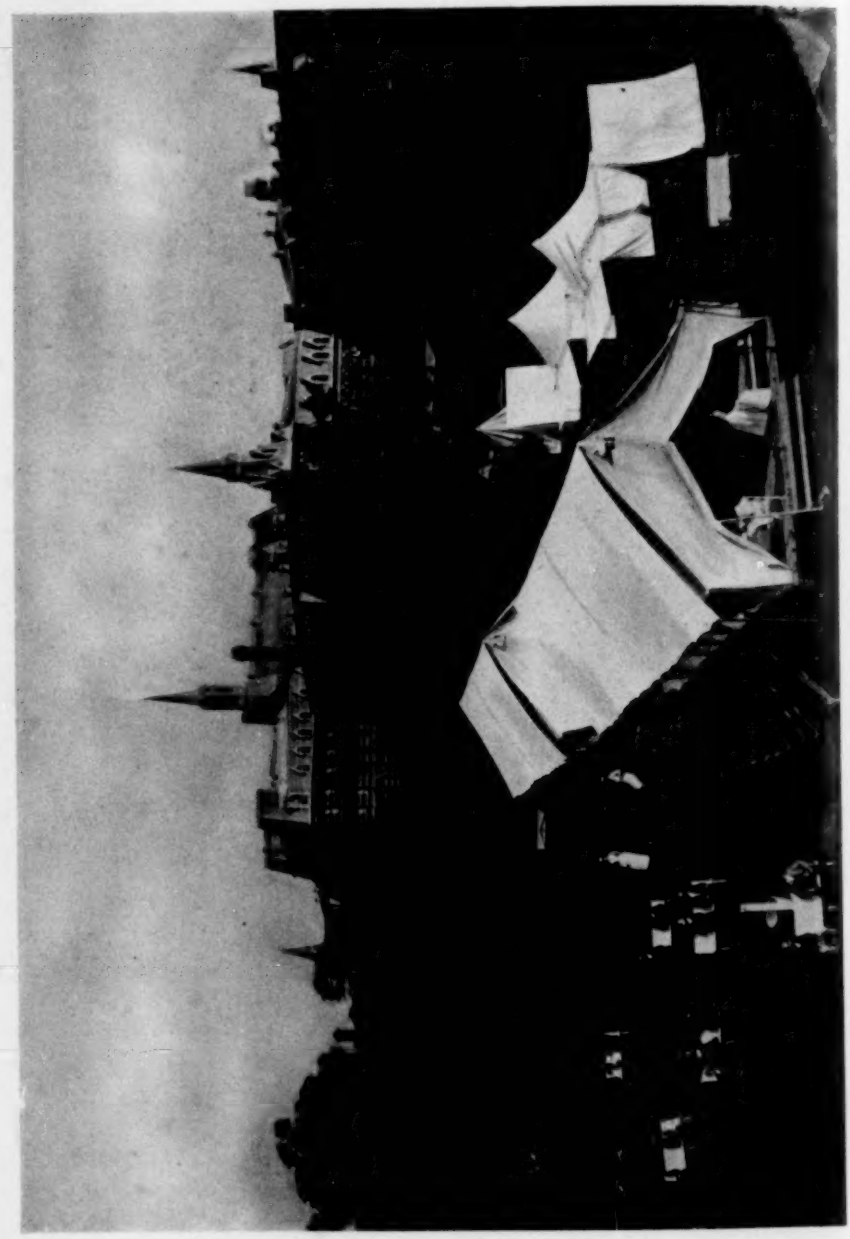
In conclusion I will say that the experiment of tent life for this class of the insane was entirely a success. Several of the

patients have been closely observed since the breaking up of the camp, and it is noticed that the inclination of those who were formerly filthy is to relapse into their former habits.

It is the intention to open another camp this summer, for the same class of patients, and also a camp for convalescent patients from which I have no doubt the results will be all that are expected.

Perhaps in the future there may be more of interest to write on this subject, and it is the hope of the writer that this brief synopsis of the results of out-door life upon these poor creatures may influence others to try the same treatment for those under their care.

TENTS FOR FEMALE PATIENTS. TO ILLUSTRATE PAPERS OF DRS. WRIGHT AND HAVILAND.



TENTS AT WARD'S ISLAND. TO ILLUSTRATE PAPERS OF DRS. WRIGHT AND HAVILAND.

TENT LIFE FOR THE TUBERCULOUS INSANE.

By C. FLOYD HAVILAND, M. D.
Manhattan State Hospital, East, Ward's Island.

The object of this paper is to call attention to the tent-care of the phthisical insane, a system inaugurated in 1901, at the Manhattan State Hospital, East, Ward's Island, New York City, by Dr. A. E. Macdonald, Superintendent, and which has been attended with the most gratifying results during the year it has been in operation.

On June 5, 1901, forty phthisical patients began a residence in tents. In this number were included all cases of both miliary tuberculosis and phthisis—at that time in the hospital. Two large tents were employed, each being fourteen feet high and having a capacity of twenty beds, allowing forty square feet of floor-space per bed. These tents were erected upon elevated dry ground—an ideal site for the purpose—where they were surrounded by abundant shade and were constantly swept by breezes from the East River, which they overlooked. The ground was cleared of all vegetation beneath each tent and a board floor constructed about eighteen inches above the ground, which, being made in sections, could be taken up and exposed to direct sunlight as occasion demanded.

In pleasant weather one side of the tent was kept constantly open, so that the interior was literally flooded with pure air, and at all times sufficient ventilation was afforded by large ventilators at either end, placed near the top of the tent. Nearby were erected several small auxiliary tents, which included two dining tents, a clothing tent and those for the residence of the attendants. Each large tent had two small ones opening into it, one furnished with a portable tub and serving as a bath-room, the other containing a commode for the use of invalids unable to use the toilet which was erected a short distance away, for the exclusive use of the campers. A separate water supply was

established, pipes being run directly to the camp, no water being allowed to be taken from this source except for the use of the tent patients.

All food was cooked and supplied from the main kitchen, but was eaten in the dining tents by those not confined to bed; here too such kitchen work as was necessary in the service of the food was performed.

The patients received frequent baths, and strict personal cleanliness was observed. Realizing that asepsis consists in extreme cleanliness the floors were frequently scrubbed with warm water, containing carbolic acid, the broom being rarely used, and then only after an antiseptic solution had been sprinkled about so as to avoid all dust. All linen was thoroughly disinfected prior to being sent to the laundry; expectoration cups and cuspidors constantly contained a two-per-cent solution of creoline and under no circumstances was the sputum allowed to become dried. The atmosphere was sprayed hourly during each day with a solution of:

	Grms.
Guaiacol	150
Acid Carbolic	90
Eucalyptol	120
Spts. Vini Rect.	2500
Menthol	60
Thymol	30
Ol. Caryophylli	30

This fluid aside from its antiseptic properties was found to possess the additional virtue of being obnoxious to insects. Asepsis was thus observed in every detail, while under this plan of treatment complete isolation from the remainder of the hospital population was secured.

Only symptomatic medicinal treatment was resorted to, the chief reliance for the improvement of the patients being placed upon the hygienic measures employed. The question of diet was given considerable attention. Four meals were served daily: Breakfast consisted of cereals, milk and eggs; at eleven o'clock a more substantial meal was served, consisting of meat, vegetables, etc. During the afternoon cocoa, beef-tea, chicken broth,

or milk with crackers or biscuits was given, and in the evening came a simple supper, similar to the morning meal. As the season allowed, the diet was varied with fresh fruits and garden products, so that at all times the patients were supplied with a sufficiency of plain, wholesome food. Particular attention was given to the free use of milk, and as it was obtained from our own cows, we were able to assure ourselves that its source was uncontaminated with the tuberculosis germ.

This plan of treatment, as outlined, was followed through all the summer months and having met with success it was determined to continue the system to some extent until as late in the year as possible. One large tent, with the necessary auxiliary tents was, therefore, removed to a sheltered portion of the hospital grounds and twenty of the more active patients were allowed to keep up their out-door life. As a commentary on the comforts of this plan of living, it may here be mentioned that had the patient's wishes alone been considered, it would have been necessary to continue the use of both large tents. As cold weather approached, heating facilities were arranged for by erecting two stoves, one at either end of the tent, each possessing a large radiating surface in proportion to the space occupied. They were ordinary grate stoves in which a coal fire was kept constantly burning throughout the winter. An ordinary stove pipe was used which passed at right angles through the vertical wall of the tent and was attached to a vertical length of pipe outside. As it passed through the tent wall it was surrounded by a double sheet-iron collar riveted through the canvas and thickly lined with asbestos. This collar rested in a wooden frame-work set in the canvas and also thickly lined with asbestos. It was further reinforced by wires attached to external supports resting upon the ground, by which means was supported the elbow of the pipe, where the horizontal and vertical sections joined. One such support paralleled this outside vertical section of pipe to which it was attached by wires, thus allowing a sufficient length of pipe to be used to afford the necessary draft. Wherever the pipe touched either wood or canvas, the point of contact was thickly covered with asbestos. The stove itself rested upon a heavy sheet of zinc. By this arrangement there was no apparent danger from fire and no difficulty was experienced in

maintaining an equable temperature in the tent, even in the severest weather. In fact this object was attained with less difficulty than was experienced in the wards, with their extended system of steamheating. To protect such patients as might possess suicidal tendencies, each stove was surrounded by a heavy upright wire grating, which possessed a door that could be unlocked, whenever it became necessary to attend to the fire.

At the suggestion of Dr. Bailhache of the U. S. Marine Hospital of New York, who has had an extended experience in the construction of hospital tents, a frame-work of heavy timber was erected on each side of this tent, to which the guy-ropes were attached instead of to pegs in the ordinary manner. As the timbers were sunk to between three and four feet in the ground, this frame-work afforded a firm, substantial support which enabled the tent to pass uninjured through several of the most severe wind-storms experienced in our climate. With this arrangement we were able to exceed our most sanguine hopes in continuing the outdoor treatment throughout the whole winter.

As soon as the weather permitted us to abandon the use of the stoves, the two large tents were again pitched on the original site and now there are forty phthisical patients under this treatment.

During the whole year we have given eighty-one patients the benefit of tent-life and during that time only nineteen deaths have occurred among them, a percentage of 23.45 out of the total number of cases treated. On the other hand, when all the deaths occurring in the hospital during the past year are taken into account, these figures make the percentage of those succumbing to tuberculosis as low as 8.8. Now while this ratio may not appear as favorable as some institutions can show, it should be remembered that large numbers of our patients come from the crowded tenement houses of New York, where the sanitary conditions are of the poorest and where pulmonary tuberculosis thrives, although it is but fair to state that under the energetic efforts of the New York Department of Health, the death-rate from phthisis in the whole city is gradually being lowered. The present rate of such deaths is 2½ per cent, with which I think the percentage in our hospital compares favorably,

when it is considered that many patients are admitted in an advanced stage of the disease, and die after but a brief hospital residence. The constant overcrowding of our wards is undoubtedly an important predisposing factor in the causation of tuberculosis and should also be considered in comparing these percentages.

But to gain an idea of the real benefit of our present tent system, we have to compare this percentage of 8⅘ of phthisical deaths with that recorded in former years in this hospital. Ten years ago they formed 17⅘ per cent of the total number of deaths, but with increasing care the proportion steadily decreased during the succeeding years, so that the yearly average has been 14 1/10 per cent during that time. One year ago 9⅘ per cent of our deaths resulted from this disease, but under the tent-care of these cases the percentage of 8⅘ is established, which is the lowest in the history of the institution. Moreover, this lowered phthisical death-rate has occurred in spite of the increase in the number of cases recognized, for in our hospital, as in all hospitals for the insane, it is undoubtedly true that patients suffer from pulmonary tuberculosis, who manifest but few clinical symptoms and who in the past have escaped diagnosis, only to have their condition revealed upon the autopsy table. Some of these patients have neither cough nor expectoration; they never complain of illness and the diagnosis must rest upon the physical examination.

Among the eighty-one patients treated during the past year at the Manhattan State Hospital, East, it was possible to confirm the diagnosis by microscopical examination of the sputum in only sixty-two cases, leaving nineteen in which there was either no expectoration, or in which it was so limited in amount that this confirmatory test was rendered impossible. Nevertheless, all such patients presented clearly the physical signs of the disease and would have undoubtedly proven foci of infection had they been allowed to remain in the wards undetected. Nor should it be forgotten that these uncharacteristic and apparently inactive cases, occurring as they do among the mentally deranged, are the ones that render pulmonary tuberculosis the dread disease it has always been in hospitals for the insane, for that infection can result from such sources I think none will deny, who has had experience among them.

An accurate index as to the condition of a phthisical patient and of any progressive change from month to month is furnished by the weight record which we regard as not less essential than the temperature, pulse, or respiration chart. During their camp life some of the patients have shown great improvement in this respect. Of the eighty-one cases, fifty-five have shown an increase in weight, the average gain being 6½ lbs., while twenty-four showed a decrease, the average loss being 4⅔ lbs. Two patients weighed the same at the end of the year as at the beginning. The greatest gain recorded was 25½ lbs., while the smallest was ½ lb. In the majority the gain or loss was progressive, and among the latter class are included the nineteen cases, which came to a fatal termination. In considering these figures it should be remembered that at no time were we able to give more than forty patients the camp care, while during the winter months the number was still further limited to twenty, so that many of the patients had a comparatively short residence out of doors, our aim constantly being to give the most acute and therefore the most unfavorable cases the benefits of this treatment. Hence these figures are less favorable than they would have been, had the whole number of patients treated remained constantly in camp. Ten patients who were sent into the wards last autumn, when the capacity of the camp was reduced for the winter and who were at that time in a comfortable physical condition were again admitted to the camp this spring. Without exception all showed a physical failure, although when formerly in the camp they had all made a progressive improvement. There was an average decrease of 12.8 lbs., in their weights, in one patient of only two pounds, while another had lost twenty-five, and still another forty-seven pounds. With the tent life these patients, with three exceptions, are again beginning to improve. But this loss in weight, although it lowers the general average gain for the year, shows in a conclusive manner the value of the out-door treatment.

Such patients as died were all in an advanced stage of the disease when admitted and had an average residence of but two months and one day in the camp, the longest being six months and five days and the shortest eighteen days. The fatal result was hastened in two of these patients by an acute mania from

which they suffered, while a third suffered from agitated melancholia. Of the sixty-seven patients who remain, seven showed immediate and progressive improvement during the whole of their camp life and were finally transferred from the tent with no symptoms of the disease. This gives a rate of only 8.64 per cent of actual cures but as I have before pointed out, these patients as a class offer but small hope for ultimate recovery, inasmuch as their mental disorder is always a prominent factor and all new cases are usually in an advanced stage of the disease when admitted to the hospital or else are in a depleted physical condition attendant on their mental condition. The patients who recovered all came under observation while the disease was yet in its incipiency and thus demonstrate again the importance of an early diagnosis in pulmonary tuberculosis.

Aside from the deaths and recoveries, fifty-one patients remain who have been for some period under the out-door treatment, and of these thirty-nine are still in the camp. In twelve of them, however, the disease, while still present, appeared to be in an inactive state and they were removed from tent-care. All are still in a comfortable physical condition, although it is from one to nine months since the treatment ceased.

At the present time but five of the patients in the camp are failing, the remainder all showing daily improvement.

The greatest benefits to the patients concerned appear to be an increased appetite and an increased ability to assimilate food. If the digestive tract can be made to do its work properly, the natural resistive power of the system will assuredly assert itself and, if the disease be not too far advanced, successfully combat the toxine elaborated by the tubercle bacilli. Almost invariably a marked decrease of the pyrexia has been observed shortly after admission to the camp, while night sweats have been notable by their absence. The single patient in whom hæmoptysis occurred, died, the hemorrhage being the immediate cause of death.

While there can be no question as to the importance of the prophylactic treatment of pulmonary tuberculosis, it is no less our duty to endeavor by all means in our power to give to a diseased system the resistive power it must possess to repel the invading bacilli. We are aware that all individuals at some time

are exposed to this ever present bacillus, despite the best efforts of bacteriologists to teach the true meaning of antisepsis; and so long as we possess no specific for the destruction of this microorganism, when it has once begun its attack on the lungs, what better method can there be to assist and augment the natural resistive powers of the body than for the individual to live an outdoor life, the natural life such as we have been giving our patients during the past year?

While I have endeavored to show that this system of care is worthy of trial, simply from the benefit resulting to the phthisical patients themselves, yet beyond that, the complete isolation resulting from this method is of particular interest to those concerned in hospitals for the insane, where hundreds of mentally incompetents are so wholly dependent upon their surroundings, and where in the past so many have fallen victims to tuberculosis. The old idea that there was some mysterious etiological connection between phthisis and the various forms of mental disease has been shown to be false and if, as has been stated, the death-rate from tuberculosis in an institution is a good index of the sanitary conditions of that institution, our duty towards the unfortunates under our care is very plain. Their protection should be secured by the isolation of every case of phthisis as soon as discovered, and a separate building could not afford more complete isolation than we have been able to provide with the tent system, while at the same time giving these patients the advantage of the open-air treatment.

Apart, however, from all physical benefits derived from the tent-care, it is an interesting fact to note that patients suffering from curable forms of mental disease also showed improvement, which in a number of cases was very marked. It is an unfortunate circumstance, however, that the majority of the phthisical insane suffer from chronic forms of insanity, thus showing an increased susceptibility in such patients, following their prolonged mental disorder. But even some of our dements displayed greater interest in affairs after they began their tent-life and under the influence of the sun-light and the greater diversity of events about them became brighter than they had been in years.

While I have no desire to appear unduly enthusiastic on this

subject, I would say in conclusion that I believe that no practical plan of treatment for the phthisical insane offers at once so many advantages as does the system of tent-care I have presented to you. We believe that we can obtain still better results as the system is extended in our hospital. Such an extension has already been provided for, and we look confidently for proportionately increased benefits in the future.

SYMPATHETIC INSANITY IN TWIN SISTERS.

By GEO. S. WALKER, M. D.

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As a matter of special interest to alienists, and of interest also to other medical brethren, I send the history of two very peculiar cases of insanity, which have been in this hospital for some time. Their special peculiarities are that they are twin sisters, and that the mental trouble of one came on suddenly, without any heredity, and that of the other came on as soon as she saw her sister.

An important question is, How much influence was exerted by sympathy of twinship in these cases? The bond of sympathy in members of the same family is known to all; but the extent and intensity of it in cases of twins is not fully comprehended. Of course, in the case of the Siamese twins, on account of the physical union which existed, the manifest sympathy between them was not so surprising. We would naturally expect in such cases, where there was a continuity of the physical as well as of the nervous system, that anything affecting one would naturally affect the other. That they would think and act alike is reasonable. But in similar cases of those who are the subjects of separate physical and nervous organization, it is yet a subject of conjecture, and so far as I can learn, unknown to the medical or scientific professions.

According to the testimony of their mother, they were from childhood intelligent, refined, and exemplary in their deportment. They were all their lifetime intimately associated in their relations, and remarkably sympathetic with one another—sharing intensely each other's joys and pleasures, and strangely bearing one another's burdens and sorrows. And strange to say, the bond of sympathy was singularly manifested in their sickness. If one became sick, the other was almost sure to get sick, manifesting the same symptoms.

As an evidence of this not being assumed, it was related that one had an attack of pneumonia, and in a day or two the other was similarly affected. Under ordinary circumstances this would have been considerable coincidence. This is only one of many instances in which their peculiar sympathy was manifested.

Every medical man is familiar with the sympathy existing between organs of the same individual—for instance, in cases of sympathetic blindness, owing, of course, to the sympathy of contiguity of the nervous system. But how such sympathy can exist in separate and distinct individuals is inexplicable. With this preliminary, I will now proceed to give an account of these two cases from the inception of their mental trouble:

Their home was in Campbell county, Va. Just preceding their attack, they had gone from home. One went to Lynchburg to visit relatives, in fine health and spirits, and to be present at the marriage of a friend. On the 1st day of February, 1900, without any premonition, she was attacked with acute mania of a violent form, which was, of course, a complete transformation, a subversion of her previous modest, retiring, and ladylike disposition to one of the very opposite. Suddenly she became terribly excited, talking incessantly and incoherently, making wild gesticulations, using profane and obscene language, was noisy, and tore up her clothes and books—everything in her reach that was breakable. She became unmanageable, and had to be forcibly controlled by her friends.

Her condition was unaccountable to her physician and friends; and hoping it might be acute delirium, resulting from some unknown physical trouble, they undertook to treat and control her at home. They kept this plan up about a week, and then telegraphed her sister, who was visiting friends in Portsmouth, Va., to come and help nurse her. As soon as she beheld her sister, she became violently insane, and in precisely the same way. We sent for, and brought the two to this hospital. They were received in a deplorable condition, both exactly alike, with all the symptoms of violent acute mania, as related in the first case. As a precautionary measure, they were placed in different wards, and had no intercourse with each other. Neither knew the other was here. They continued to be violent for some

time; and a curious and most remarkable psychological fact is the similarity of the progress of their attacks. How far such conditions were due to the usual course of such individual cases, or to the unaccountable sympathy existing between them, are matters for conjecture. If they had been entirely distinct individuals, of different families, one might think this condition not so strange, as such cases run very much the same course—differing, however, somewhat in intensity, and also in duration, owing to the direct and indirect heredity and severity of the existing cause in each case, and their susceptibility to mental shock.

Thus, in the second one of these sisters, without, however, any inherited predisposition, we might say her attack was due to the shock of beholding her sister in such a deplorable condition. But here is presented a mystery—why, she, too, should have exactly the same form of insanity, acute mania in a violent form?

Now comes the most wonderful similarity of these cases, and that which makes them peculiar in their remarkable sympathy: As related above, they were placed in different wards, and kept entirely separate, unconscious of each other's presence in the same building, or even in the hospital. After awhile one got better, and it was observed that the other was better at the same time. Both continued to improve, and both became more rational. After awhile both relapsed at the same time. This continued for awhile, and at one time great hope was entertained of their recovery. They were allowed to visit each other, at one time, and recognized one another, but never realized their situation or became rational enough to object to their environment.

Subsequently they both relapsed and continued violent, until finally both became demented about the same time, and both have continued since in this condition.

Thus have I related an exact history of the above cases, without going into their physiological and psychological condition.

Notes and Comment

FIFTIETH ANNIVERSARY OF THE SOCIÉTÉ MÉDICO-PSYCHOLOGIQUE DE PARIS.—On the 26th of May, 1902, the Société Médico-Psychologique held its fiftieth anniversary. The proceedings were opened by the reading of congratulatory letters and telegrams by the secretary which was followed by an address by the president, Dr. Motet. After the report of the committee on the Aubanel Prize, which was divided between MM. Bernard, Leroy and Castin, Dr. Ritti, the secretary, read a history of the society.

This very interesting paper appears in full in the report of the proceedings of the society, in the *Annales Médico-Psychologiques* for July-August, 1902, and from it we make a brief abstract of the principal points of interest.

The society owes its origin to the indefatigable Dr. Baillarger who founded the *Annales Médico-Psychologiques.* Early in 1846 Renaudin wrote to Dr. Baillarger expressing a desire to see more attention given to statistical research. Baillarger's answer to this was really a programme of work. Renaudin interested Aubanel and they with Baillarger interested others until finally on Saturday, December 18, 1847, a society was formed which had for its object the study "et le perfectionment" of mental pathology, under the name of "La Société Médico-Psychologique." Scarcely had the necessary legal formalities been concluded when the Revolution put a stop to everything until 1852 when, political affairs being somewhat settled, alienists again turned their attention to the organization and its objects, and the society held its first meeting on April 26, 1852. The officers elected were: Ferrus, president; Gerdy, vice-president; Dechambre, corresponding secretary; Michea, recording secretary; Brierre de Boismont, treasurer; Buchey, Baillarger, and Cerise, committee on publication. The society held its first regular meeting in June, papers being read by Delasiauve and

Baillarger. In this same year four long sittings were devoted to the discussion of the influence of civilization on the development of insanity. This first discussion was participated in by the majority of members with much spirit. When organized the society was composed of authors, metaphysicians, and philosophers as well as physicians, but gradually the membership became entirely medical. Two important papers of this first year were "Quelques mots de philosophie à propos d'aliénation mentale" by Buchez, and "Nouvelles observations sur les analogies des phénomènes du rêve et de l'aliénation mentale" by Alfred Maury. At the very beginning the society took a high rank by reason of the merit of its papers and discussions. In reviewing the work of the society it is impossible to mention any but the most notable of the papers and discussions. The subject of Monomania was discussed with great enthusiasm at nine meetings during 1853 and 1854. In 1855 the subject of hallucinations was discussed at no less than ten meetings. This habit of continuing a subject from meeting to meeting, while somewhat unusual to us in this country, seems to have been a common occurrence, and is continued up to the present time. In 1856 Parchappe read his paper "Du siège commun de l'intelligence, de la volonté et de la sensibilité chez l'homme." Catalepsy was discussed in 1857, being introduced in a paper by Cerise on its treatment. Paresis was brought forward in 1858 in a paper by Linas entitled "Recherches cliniques sur les questions les plus controversées de la paralysie générale," and since that time has been made the subject of frequent debate.

Epilepsy was introduced to the notice of the society in November, 1872, in a paper by Berthier, entitled "Des transformations Epileptiques." It was discussed at seven meetings. Another notable discussion which lasted from October, 1886, to June 25, 1888, occupying fourteen sessions, was upon "Délire chronique," and was one of the most remarkable ever held by the society. This discussion turned upon the application of a term introduced by Lasègue in 1852, "délire chronique" and the proper interpretation of the symptoms grouped by him and his followers under this heading. Paul Garnier, a pupil of Lasègue and Magnan, defined délire chronique as a "mental affection with a tendency to become chronic by progressive evolution."

This evolution he divided into four stages: 1. The period of incubation characterized by depression, restlessness, and a condition of psycho-sensorial erethism. 2. A period of delirium of persecution. 3. A period of exalted ideas, delusions of grandeur. 4. Terminal dementia. The order and constancy of these stages were vigorously disputed, and Séglas and others made a spirited assault upon chronic delirium as a distinct psychosis.

Our readers who do not care to follow the entire discussion which runs through several volumes of the *Annales Médico-Psychologiques* will find in *L'Encéphale* for September and October, 1888, an excellent résumé of the whole discussion by Rouillard.

The war of 1870 for a time caused a cessation of the work of the society but the meetings were resumed in June, 1871. Since that time the work of the society has gone on continuously and the name which it has made for itself is too well known to need any comment. When the society was organized there were thirty-one members; at the present time its membership is nearly three hundred. There is no movement for the improvement of the condition of the insane in France in which the society has not been actively concerned. An outgrowth of the "Société Médico-Psychologique," the "Association mutuelle des médecins aliénistes de France," also suggested by Baillarger, has distributed nearly 230,000 francs in aid, and acquired a capital of more than 150,000 francs. This association held a meeting on the same day as the parent society, the president, Dr. Christian, being in the chair. In the evening after the meeting of the parent society a banquet was held. The record of this society is one of which it may well be proud and it has our best wishes for the future as well as our predictions that its work will, as in the past, reflect credit upon its members and redound to the interests of scientific medicine. We repeat the sentiment of Dr. Pilcz, of Vienna, in a telegram read at the banquet which terminated the celebration of the fiftieth anniversary of the society: "*Societas Medico-Psychologica vivat! floreat! crescat!*"

Death of Dr. Falret.—Dr. Jules Falret died on the 28th of May, 1902, two days after the fiftieth anniversary of the founding of the Société Médico-Psychologique. Of this so-

ciety he was one of the oldest members and had twice been its president. From the *Archives de Neurologie* we abstract the following: Dr. Falret was born April 18, 1824, in the hospital at Vanves founded by his father and Felix Voisin. He became interne at this hospital in 1847, and received his doctor's degree in 1853. His graduation thesis was "Sur la folie paralytique et les diverses paralysies générales," and he developed and completed the ideas therein advanced in many later studies. He was made physician to the Bicêtre in 1867 and to the Salpétrière in 1883. He was a most active student and writer, and the more important of his publications have been collected into two volumes entitled "Etudes Cliniques sur les Maladies Mentales et Nerveuses," and "Les Aliénés et les Asiles d'aliénés." He was a remarkably clear speaker and was held in great esteem by his associates. Besides being twice president of the Société Médico-Psychologique, he was president of the International Congress of Mental Medicine in 1889, and was president of the Société de Médecine Légale de France in 1893.

Twelfth Congress of Alienists and Neurologists of France and French-speaking Countries.—This meeting was held at Grenoble August 1 to 7, 1902. Proceedings were opened by M. Gontard who made the address of welcome in the absence of the mayor, and who was followed by the president, Dr. Régis, with an address of thanks. An address was delivered by Dr. Bordier. That the meeting was a most interesting one may be learned from the following list of a few of the papers read: "Des états anxieux dans les maladies mentales," by Dr. Lalanne; "Des tic en général," by Dr. Nogeus; "Sur quelques détails relatifs à l'étiologie et à la symptomatologie des tics," by Dr. Pitres; "De l'utilité de la ponction lombaire pour le diagnostic de la paralysie générale," by Drs. A. Joffroy and E. Mercier; "Traumatisme et folie," by Drs. Marie and Picque; "L'état du fond de l'oeil chez les paralytiques généraux et ses lésions initiales," by Drs. Keraval and G. Raviart; "Sur le signe pupillaire d'Argyll-Robertson," by Drs. Cestan and Dupuy-Dutemps; "Sarcomes et sarcomatoses du système nerveux," by Drs. Philippe, Cestan and Oberthur; "Observations de deux frères atteints de paralysie générale apartenant à une famille de dégénérés," by Drs. Joffroy and Et. Rabaud.

Among the entertainments were a reception at the City Hall, a banquet, an excursion to La Mure, and a visit to the Asylum of Saint-Robert. The next Congress will be held at Brussels.

MACHINE POLITICS IN STATE HOSPITALS IN ILLINOIS.—The tendency in administration of Hospitals for the Insane in the State of Illinois has been a downward one during the past few years, largely from the exploitation of the state institutions for political purposes by the successive governors, both republican and democratic, beginning with Altgeld, in 1893.

Prior to that time, state executives, like Callom, Ogleby and Fifer, had avoided political interference in the charitable institutions. These institutions were managed as now, by boards of three trustees each, who, in the earlier days were selected by the executive for public spirit and interest in creditable management rather than for their qualifications as "henchmen" and political manipulators.

One influence that doubtless formerly contributed to respectable administration and interfered with the building up of a "machine" was the fact that in Cullom's first term the balance of power in the senate (which body confirmed the governor's appointments), was held by an independent or democratic element, so that several of the boards were of non-partisan complexion and a leaven of political impartiality was thus introduced.

Prior to 1893 interference from political or personal motives was as much an exception as it afterwards became the rule; as an illustration it may be mentioned that one of the governors above named, on an occasion, applied for a position to be given his brother in one of the hospitals and when informed that no suitable vacancy existed and that it was not deemed warrantable to create either a vacancy or a position, was perfectly satisfied.

Under these circumstances a fairly high standard was maintained, and merit was the controlling principle in the selection of employees.

The State Hospital at Kankakee has probably not been more viciously managed by Altgeld, Tanner and Yates than have the others but has recently attained a bad eminence by reason of scandals made public, in its administration. The charges against the above hospital emanated largely from a questionable source,

namely, discharged employees, and were made public on the eve of an election, but as it turned out, although much personal and political spite inspired them, the facts unquestionably established by the investigation of Governor Yates' own Board of Charities were such as to create a most painful impression, especially as an effort was shown in the investigation rather to exclude and suppress unfavorable evidence than to arrive at the truth. The only member of the Board (Judge Gibbons, of Chicago), who showed a desire to give a fair hearing was overruled in his motion to hear witnesses and refused to sign the report as at first prepared, and the statements of the report itself as finally presented, are such as to clearly establish the correctness of the main charges, which were: that officers in responsible places had been guilty of drunkenness and immorality; that political assessments had been well nigh universal and forcibly levied upon officers and employees, and that within a recent period two illegitimate births had occurred in the case of two female inmates.

In regard to political assessments the words of the report are: "It appears that funds were collected from employees for political purposes. . . . It [the Board] is of the opinion, however, that the superintendent should not permit the collection of funds for political purposes from employees where such action may be construed by them as a requirement to give contrary to their own free inclination and desire."

In this connection it is of interest to add that a former employee of one of the institutions brought suit against the disbursing officer to recover the amount he paid as a political assessment, making Governor Yates a party to the action, and a representative of the governor paid to this employee's attorney $33.75, being the amount claimed, plus $5.00 in costs. A statement was then given out that the 5 per cent collection would be discontinued, and that any employee who desired his money back could get it.

Another charge was as to drunkenness and immoral conduct on the part of one of the trustees, who it was alleged was at the institution at night in a state of intoxication (obtaining his stimulant from the hospital dispensary), and visited the room of one of the woman employes. The witness testifying to these facts

was charged with perjury and arrested and confined in jail, but secured release and a charge of venue. The prosecution was afterwards dismissed and dropped by the representatives of the trustees. It was reported in this connection that an attorney who was consulted with a view to defend the witness on the perjury charge, stated he could not take the case as it would affect him in his practice as a lawyer because the circuit judge of the district was a brother to the president of the Board of Trustees of the Hospital for the Insane, and he (the attorney) felt his standing at court would be unfavorably affected by his espousal of the cause of the accused.

The trustees admitted in their report that the charge of drunkenness against the supervisor of the male ward was sustained, and this man, who had been subsequently made chief supervisor, "has performed his duties well and been an efficient officer and under the circumstances your board is of the opinion he should not be discharged from the institution for past offences."

It was charged and freely admitted by the board of trustees that within the recent past two cases had occurred in which female patients had given birth to illegitimate children. The trustees state in their report: "One of the patients referred to had been in the parole ward for two years and was subsequently employed for fourteen months at the superintendent's residence." . . . . "The faith and reliance put in the woman by Miss Bates on this one evening in permitting her to go to the dance unattended afforded the opportunity which brought such evil results." . . . . "These are the first instances of the kind which have occurred in this hospital for several years, and your board is assured that there will, if possible, be more strict surveillance in the future of paroled female patients."

Space does not admit of discussion of the charges that political work was done by employees (which was freely admitted by the management, and in the report of the Board of Charities), or that the President of the Board of Trustees practically employed and discharged those engaged in the institution from medical officers down, often without reference to the superintendent, as well as various other evidences of lax or corrupt management.

One of the striking and disheartening things about the situation in Illinois is the apathy on this subject of these evils among

the people. It seems to be regarded by masses of people as legitimate that any one securing a place in a state institution shall pay for the "pull" used in securing it and make his contribution to the "machine."

Doubtless repeated exposures like those at Kankakee and repeated presentation of object lessons showing the abuse, neglect and scandal growing out of political prostitution will be necessary before the people will be sufficiently aroused to demand and compel from the state executive an enforcement of better methods. It is to be remembered that up to within a few years Illinois has had very efficient and respectable state service. When the democratic party was victorious in Illinois in 1892 for the first time in over 25 years, it was inevitable that such a man as Altgeld would practically make a "clean sweep." Then the republican party, coming into power again with such a thoroughpaced politician as Tanner would "better the instruction" of Altgeld. Finally, Yates, a narrow and selfish partisan "out-Herods" Altgeld and Tanner. The people are slow in learning the lesson and seeing the results of machine politics, but the suffering of the helpless insane touches them in a tender spot, and when they realize how "practical politics" brings it about, they will see to it that their servants, the state executives, master and man, shall be politically clean, honest and humane in their views and their administration.

Obituary

DR. EUGENE GRISSOM.

Eugene Grissom, M. D., LL. D., was graduated from the University of Pennsylvania in 1858. He was some time President of the Association of Medical Superintendents of Medical Institutions for the Insane, and also filled important official positions in the American Medical Association. He served as Vice-Chairman of the Mental Disease Section of the International Medical Congress held in Philadelphia in 1876. For 21 years (1868-1889) he was superintendent of the North Carolina Insane Asylum at Raleigh. He was also a member of the commission which located and constructed the Insane Asylum near Morganton, N. C. He was at one time a member of the North Carolina Legislature. In 1890 he removed to Colorado, where for some years he practised as a physician, alienist and neurologist. On account of failing health he took up his residence in Washington with his son, where he died July 27, 1902. Among his more important contributions to medical literature may be mentioned the following: "The Borderland of Insanity"—a paper on epilepsy. "Mania Transitoria;" "Mechanical Protection from the Violent Insane;" "True and False Experts;" "Deaf-mutism—its connection with Insanity;" "The Semeiology of Insanity."

Fuller biographical sketches of Dr. Grissom are to be found in "The Physicians and Surgeons of the United States" (1878), edited by Dr. Wm. B. Atkinson, and in "Representative Men of the South."

Abstracts and Extracts

MENTAL DISEASES OF CHILDREN. By F. X. Dercum. Philadelphia Medical Journal, Vol. 10, p. 89. July 19, 1902.

Insanity, such as is met with in the adult, is rare in infancy. Idiocy and imbecility, on the other hand, are quite common, the distinction between these two being more of theoretical than of practical value.

For the purpose of comparing the insanities of childhood with those of adult life, the general grouping of adult insanity may be referred to as follows:

1. Delirium, confusion, stupor, presenting hallucinations, illusions, etc.
2. Melancholia, mania, and circular insanity.
3. Paranoia.
4. Neurasthenic insanity; in which the neuropathic constitution is a necessary prerequisite to a neurasthenic constitution to develop insanity.
5. Dementia.

Beginning with the first group, children suffer with delirium in febrile diseases very frequently; the hallucinations and illusions are vivid and the illusions are as evident as in the adult. After exhausting affections such as typhoid, children are often seen in states of confusion and stupor, which do not differ from the corresponding affections met with in adults.

In regard to the second group and the third, the mental symptoms appearing in these are seldom found in children. The emotional development in a child is not sufficient to admit of real melancholia, exaltation or mania.

Paranoia also presupposes an intellectual development sufficiently far advanced to enable the patient to evolve complex and well-ordered systematised delusions.

However, vague and ill-defined symptoms of the forerunners of later mental defects are seen, as a child may exhibit excessive fear, shyness, morbid conscientiousness, confess imaginary sins, show abnormal exaltation and excitement, or make precocious religious profession. These suggest melancholia on the one hand and mania on the other. But typical mental disease only becomes noticeable as we approach puberty, and furthermore the influence of heredity cannot make itself felt till there is a certain amount of mental development. Suicide in children rarely occurs in a true attack of melancholia, but is the result of fear of punishment or revolt against discipline.

The fourth group—the neurasthenic insanities—may occur in children, but with two qualifications.

First. The disorder is far more rare than in adults; and, secondly, it is not as well defined; both points being doubtless due to the fact that the mind is less mature. There are noted abnormal fears, painful indecision, tyrannical obsessions, irresistible impulses, but the symptoms are ill-defined and changeable. There are usually present neuropathic stigmata, as, anomalies of features, arrested development and so on. Occasionally also the child is abnormally precocious. These neurasthenic tendencies may be prodromal to the dementia præcox of Kraepelin.

In the fifth group, dementia takes the form of dementia præcox, which in its onset may antedate puberty or not come on till some time after. It is a type which begins insidiously; it may present itself in various forms and its symptoms are manifold. The patient may be slow to learn or on the other hand, having been bright, becomes listless and inattentive. He may be given to running away without reason and other similar acts. The disease is seldom recognized as such before puberty and its many symptoms develop after the patient has passed beyond the age of childhood.

Among the specific forms of insanity met with in the adult and deserving of mention as occurring in childhood is juvenile paresis. It is rare, but inherited syphilis appears to be the essential factor. The disease is similar to that of the adult, except as regards symptoms depending upon a mature mental organization, that is, the elaborate and well-defined delusions. Hysterical and epileptic insanities need be mentioned, the symptoms being essentially the same as in the adult. The form in hysteria is that of delirium, occasionally accompanied by excitement or confusion. In epileptic insanity there are attacks of delirium, or there may be mental confusion and stupor, with dulling of mental faculties—a mild dementia. S. D. L.

A Note on Some Psychoses of Early Puberty, with Report of a Case in a Boy, Twelve Years Old. By Alfred Gordon, M. D., Philadelphia Medical Magazine, Vol. 10, p. 332. September 6, 1902.

The author reports in detail the case of a boy who suffered with *folie du doute* and *delire du toucher*, together with hallucinations of sight, and subsequent mental deterioration. He regards the patient as a higher degenerate, probably the subject of an incipient dementia præcox.

W. R. D.

The Changes in the Spinal Cord and Medulla in Pernicious Anæmia (Shattuck Lecture). By Frank Billings. Boston Medical and Surgical Journal, Vol. CLXVII, pp. 260-261, September 4, 1902.

After reviewing the literature and generally discussing the subject, the author arrives at the following conclusions, based on the examination of thirty-six cases:

(1) There is a well-established relation of diffuse cord degeneration with pernicious anæmia.

(2) It seems highly probable that the hemolysis and the cord changes are due to the same toxin.

(3) While the source of the toxin is unknown, the fact that gastro-intestinal disturbance is so common in the disease would lead one to suppose that it is of intestinal origin.

(4) The diffuse degenerations of the spinal cord which occur in conditions without pernicious anæmia do not appear to differ essentially from those of pernicious anæmia.

(5) It is possible that a common blood-circulating poison exists which may expend its force upon the blood in one individual, upon the nervous apparatus in another, and coincidently upon the blood and spinal cord in others. W. R. D.

Subacute Combined Degeneration of the Spinal Cord with Pernicious Anæmia. By William Pickett, M. D. Medicine, Vol. 8, p. 740, September, 1902.

The author reports in detail the pathological changes found in the spinal cord of a patient dying from pernicious anæmia, who developed paraplegia ten days before death. He reviews the literature and says the case is offered as a slight rebuttal of the opinion that the subacute combined degeneration of Russell, Batten and Collier is never associated with pernicious anæmia, and as support to the view that in cases of subacute combined degeneration of the cord there are two processes present, the one systematic, the other diffuse. The author opposes the hypothesis of a toxæmic origin of the cord changes.

W. R. D.

Spinal Cord Conditions in Severe Anæmias. By Archibald Church, M. D., New York Medical Journal, July 26, 1902, Vol. LXXVI, p. 136.

That anæmia may be an active element in the causation of cord changes has been shown by the experiments of Massaro and others. It is believed by some that there is a toxic element present in connection with the anæmia, the latter being the cause of diminished resistance thereto.

Women are affected about three times as often as men and the condition is encountered usually in those who show a predisposition to lowered stability and perhaps a lowered structural strength of the nervous apparatus, such as is indicated by a neurotic heredity. The symptoms of involvment of the cord are commonly obscure and not infrequently entirely overlooked by the practitioner who is busied particularly with the cachectic state upon which they are engrafted. On the other hand they may attract early attention and the case may be diagnosed as locomotor ataxia, spastic paraplegia, or multiple neuritis. The symptoms may fluctuate so that a case that at one time is spastic with rigidities, cramps in the lower extremities, and increased reflexes, later on may present a flaccid paralytic state with abolished kneejerks, and even lost control of the sphincters. There is usually considerable disturbance of sensation; numbness, tingling, and formication, especially in the lower extremities. The limbs may have a feeling of pressure

from within or from without. Ordinarily the muscles do not waste more than would be explained by the cachectic condition of the patient and the general emaciation. Ordinarily, too, there is normal response to electrical stimuli. The patients are generally peevish, irritable and forgetful and are apt to be somnolent with a tendency to mental confusion on waking. Church regards this as an important symptom. The optic nerve may show more or less atrophy. The duration of the disorder depends upon the associated anæmia. The cases usually last from one to five years after presenting nervous symptoms. The prognosis depends on the condition of the blood. Intestinal injections of normal salt solution every two hours have proved beneficial. The paper concludes with reports of six cases recently seen by Dr. Church.

W. R. D.

A Case of Internal Hydrocephalus in the Adult, simulating Cerebral Tumor. By William B. Warrington, M. D. Medical Press and Circular, Vol. CXXV, p. 101, July 30, 1902.

The patient was a clerk, 39 years old, of good habits, and with no specific history. For months he had complained of frontal headache and loss of memory. He had had occasional attacks of vomiting without apparent cause. On examination his speech was slow and deliberate; there was slight tremor of the tongue but none of the lips nor hands. The gait was normal. There was no ataxia, no Romberg's sign, and the knee-jerks were natural. Vision was excellent, the pupils were equal, but the optic discs were slightly blurred. There was great mental deterioration. A diagnosis of organic brain disease was made, perhaps tumor, possibly general paralysis. Within a month the patient had sunk into complete mental hebetude, was untidy, and was found to have marked double optic neuritis with hemorrhages. Later delusions and slight left exopthalmos were present. The mental hebetude recurred and the patient died suddenly fourteen weeks after he was first seen. At autopsy the skull and dura were normal; the lateral ventricles were very greatly distended with clear fluid. The choroid plexuses were congested and their veins tortuous; the small veins lining the walls of the ventricle were also clearly distended. The ependyma throughout was normal, smooth and glistening. The foramen of Munro was considerably dilated. In the floor of the fourth ventricle the ependyma was replaced by a rough, raised, lustreless formation which microscopic examination showed to be inflammatory vascular connective tissue. There was no growth or any other abnormality found in the cranium. The case, therefore, was one of acquired hydrocephalus in the adult.

W. R. D.

Active Movements in the Chronic Stage of Paralyses. By E. H. Arnold, M. D. New York Medical Journal, Vol. LXXVI, p. 277, August 16, 1902.

The author describes a form of apparatus for keeping up the volitional

control of the muscles in cases in which the motor centres are impaired from hemorrhage, or in cases of cerebral or spinal paralyses of an inflammatory character. The treatment is begun as soon as all danger of a recurrence of the cause has passed. The apparatus consists of a broad board upon which the patient lies and which has two arc-shaped boards attached to each side, one corresponding to the lateral movements of the foot, the other to the lateral movements of the hand. To do away with the resistance between the moist limb and the board the limb is attached to a car made of a small board on castors. As the patient's power increases, the resistance is increased by attaching a weight by means of a cord and pulley.

W. R. D.

MÉDICINE ET POLICE: LES EMPREINTES DES PIEDS EN ANTHROPOMETRIE. Par Marcel Bandouin. Gazette Médicale de Paris, An. LXXIII, p. 225, July 12, 1902.

The author calls attention to the value of footprints, not only for their markings comparable to those of the thumbs and palms of the hands, but also as showing the manner of gait. He recommends recording footprints as a means of identification of criminals, in addition to the Bertillon system. W. R. D.

A CASE OF MULTIPLE PERSONALITY. By J. Allen Gilbert, Ph. D., M. D. Medical Record, Vol. 62, p. 207, August 9, 1902.

The patient was admitted to the hospital in Portland, Oregon, following a head injury. He was discharged and admitted several times on account of peculiar actions. These seemed to be loss of memory and he was hypnotised in order to ascertain if his memory could not be assisted. When he woke it was found he had changed his personality, and subsequent sittings developed that there were three personalities. An almost complete history of his life was obtained by joining the accounts given by the three personalities, the hiatuses probably representing transitional or mixed states. Usually his changes of personality took place while on a train or immediately afterwards. Finally an attempt was made to unite the events of his different lives into a unitary consciousness while the patient was in a hypnotic state. This proved quite successful. The author terms the process a psycho-epileptic exchange of personality.

W. R. D.

MENTAL DEFECTIVES: THEIR CLASSIFICATION AND TRAINING. By Martin W. Barr, M. D. Philadelphia Medical Journal, Vol. 10, p. 195, August 9, 1902.

The author gives the following classification which he asserts is universally accepted in America. The idiot: (a) apathetic; (b) excitable. Unimprovable, to whom nothing can be given but asylum care. The idio-imbecile: improvable in slight degree. The imbecile: (a) high-

grade, (b) middle grade, (c) low grade. Trainable in various lines. The moral imbecile: (a) high grade, (b) middle grade, (c) low grade. Amoral or lacking completely the moral sense. Trainable only under custodial care. Barr advocates establishing separate asylums for hopeless cases in order to relieve the training schools; legislative enactments requiring the separation of abnormal from normal children and their sequestration in training schools, "the permanent sequestration, *under conditions dictated by science* forbidding increase of those adjudged unfit for the duties of parenthood and citizenship."

W. R. D.

Unusual Complications of Tabes: I. Tabes with Progressive Muscular Atrophy; II. Tabes with Multiple Sclerosis. By E. W. Taylor. Boston Medical and Surgical Journal, Vol. CXLVII, p. 129, July 31, 1902.

Taylor reports in detail two very interesting cases. It is impossible to make a brief abstract of his paper and the reader is therefore referred to the original. W. R. D.

A New Clinical Method of Diagnosis called "Skin Markings." By Herman Lawrence, M. R. C. P. Intercolonial Medical Journal of Australasia, Vol. VII, p. 26, June 20, 1902.

The author, who is a specialist on skin diseases, has made a study of dermatographia in connection with various diseases, and has evolved a method of expressing by numerals the alteration produced in the skin by pressing a pencil or a glass rod upon it. His symbols are as follows:

N. No reaction.

O. E. Œdematous skin.

H. Hyperæsthesia.

(1) Immediate pressure line.

(2) Normal vaso-dilator line.

(3) Abnormal vaso-dilator line.

(4) Line of irritability, vaso-constriction upon either side of vaso-dilator.

(5) Line of chronicity, vaso-constriction.

(6) Serous exudation line, following upon exaggerated vaso-dilator line.

(7) Lymph accumulation line, not necessarily preceded by vaso-dilator line.

Possibly there is no difference between 6 and 7. A + sign preceding the numeral indicates that the line is exaggerated. A + sign following the numeral indicates that the reaction lasts for a long time. Minus signs in the same positions indicate a reverse condition.

The normal autogram of the skin would therefore be 1, 2. The marking should be made upon the trunk as the autogram varies with the part pressed on and the age of the patient. The author has found that these autograms indicate the chronicity and intractibility of skin

diseases by indicating the condition of the vaso-motor system, and are also aids in diagnosis. In acne vulgaris the commonest marking is + 1, + 3 +, that is, an exaggerated immediate pressure line is followed by a well-marked red line which lasts for some time. A case of neurasthenia marked + 1, + 2, + 7 +, the + after 7 equaling three hours. Of eight cases of dementia, all but one marked — 1, — 2 —, or 1, — 2 —. The remaining case was one of general paresis and marked 1, 3. The greater part of the article is occupied with the author's investigations of the markings of various skin diseases. W. R. D.

EMOTIONS MORTELLES. Par P. Keravel, M. D. L' Echo Médicale du Nord, An. VI, p. 351, July 27, 1902.

The author gives abstracts of three mental cases in which a marked emotion was quickly followed by the death of the patient. The first patient was told that he was to be discharged on trial. In a few days he had a congestive attack, and died after ten days. The second case was a paranoiac who was deprived of his razor. He fell into a condition of confusion, soon succeeded by coma, and died in eight days. The third case was a general paralytic who was reproved for some breach of discipline and was found dead in bed on the following day. The autopsy showed a cerebral hemorrhage. W. R. D.

THE PROPHYLAXIS AND TREATMENT OF ASYLUM DYSENTERY. By N. H. Macmillan, M. B. Journal of Mental Science, Vol. XLVIII, p. 509, July, 1902.

The author describes briefly a severe epidemic of dysentery at Claybury Asylum, and the means taken to combat it. The prophylactic measures have been chiefly isolation and disinfection, with careful attention to diet. As to treatment, the patients were kept at rest in bed, not being allowed to get up even to use the commode or to have the bedding changed. A milk diet was given for the first two days and then arrowroot was added. In the more severe cases a purgative such as castor oil or epsom salts was given. When milk was bodly borne, beef tea was substituted. When the diarrhœa ceased and appetite returned, custard, eggs and boiled fish were given. The author thinks that it is a common error "to give too little stimulant at the commencement of the attack, and too much in the later stages, when either the patient will die whatever treatment may be adopted, or will do better under tonics or more generous diet." During convalescence the patients are kept in the fresh air as much as possible. The author refers to the work of Shiga and Flexner, and states that Durham has found a minute micrococcus in his work at Claybury, but has not yet completed his investigations. W. R. D.

THE ETIOLOGY OF ACUTE DYSENTERY IN THE UNITED STATES. By E. B. Vedder and C. W. Duval. Journal of Experimental Medicine, Vol. VI, p. 181, February, 1902.

The authors give in detail the results of bacteriologic investigations of cases of dysentery occurring at the Philadelphia Hospital, the Lancaster County Almshouse and Insane Asylum, and the Springside Home, New Haven. The conclusions are as follows:

1. The several standard cultures used in this study are indistinguishable—a conclusion previously reached and stated by Flexner.

2. The acute dysentery of the United States is due to a bacillus indistinguishable from that obtained from the epidemics of dysentery in several other parts of the world.

3. The sporadic and the institutional outbreaks of acute dysentery are caused by the same microorganism, and this organism is identical with that causing epidemic acute dysentery.

4. The cause of acute dysentery, whether sporadic, institutional or epidemic, is Bacillus dysenteriæ Shiga. W. R. D.

THE ETIOLOGY OF THE SUMMER DIARRHŒA OF INFANTS: A PRELIMINARY REPORT. By C. W. Duval and V. H. Bassett. American Medicine, Vol. IV, p. 417, September 13, 1902.

The authors have made bacteriologic investigation upon the summer diarrhœas of infants in the Thomas Wilson Sanitarium, near Baltimore, where several hundred infants sick with summer complaint are treated each summer.

B. dysenteriæ Shiga was isolated from the stools of 42 typical cases of summer diarrhœa. The bacillus was also secured at autopsy from scrapings of the intestinal mucosa, and in one case from the mesenteric glands and liver. Agglutinative reactions with the organisms were obtained (a) with the blood serum of patients from whom they were secured, (b) with the serum of other infants suffering with summer diarrhœa, (c) with the serum of adult patients suffering with acute dysentery, and (d) with antidysenteric serum. The specific bacillus was not found in the stools of twenty-five healthy children, nor of those suffering with simple diarrhœa, marasmus, and malnutrition. The authors believe that B. dysenteriæ Shiga causes the summer diarrhœas of infants as well as the acute bacillary dysentery of adults. A full report will be published in the Journal of Experimental Medicine.
W. R. D.

THE SURGICAL TREATMENT OF DELUSIONAL INSANITY BASED UPON ITS PHYSIOLOGICAL STUDY. By T. Claye Shaw, M. D. Journal of Mental Science, Vol. XLVIII, p. 450, July, 1902.

The author believes that all delusions will be found to be due to local material changes in the brain. In studying cases of delusional insanity he thinks all efforts should be directed to ascertain which group of local signatures was primarily affected, whether the aural, optical, touch or smell centers, and pay no attention to the secondary centers, which are merely displaying their associative connection with the real seat of disease. When this has been ascertained, the author believes that

surgical operative measures will disclose a diseased condition which may be alleviated with subsequent disappearance of the delusion. He speaks of a case with persistent olfactory hallucinations in which after death there was found a sclerosis of the olfactory center.

W. R. D.

Loss of Sleep. By J. Allen Gilbert. American Medicine, Vol. IV, p. 418, September 13, 1902.

The author gives an abstract of certain experiments, a detailed account of which appeared in "Studies in Psychology" of the University of Iowa, 1897. He concludes his paper with the following summary:

The pulse is lowered by progressive loss of sleep. For the first 24 hours exercise increases the pulse-rate, but as loss of sleep increases the same exercise decreases the pulse-rate. After sleeping the rate rises again to normal or slightly above and exercise again increases it. The temperature is lowered by excessive loss of sleep, the normal being regained after sleep. The weight increases rather constantly with loss of sleep and decreases again after sleep. However, so many elements may be instrumental in producing this result that too much emphasis dare not be put on the statement. Strength as manifested by lifting ability is markedly decreased by loss of sleep and reinstated by subsequent sleep. Reaction-time and reaction with discrimination and choice are affected but little until the expiration of 72 hours of wakefulness, when the time is noticeably increased, sleep again decreasing it. Acuteness of vision is increased while acuteness of hearing is decreased by loss of sleep, each returning partially to normal subsequent to the period of sleep. The power of memorizing is affected but little for 66 hours, after which time it rapidly becomes poor, at times entire control being lost, subsequent sleep, however, restoring the full normal power. Rapidity of addition of figures follows somewhat the same law as power of memorizing though not to such a marked degree. Perception, as indicated by the rapidity of naming letters, is markedly dulled by loss of sleep, full power being restored subsequent to sleep. The amount of urine excreted per hour during sleep fast was nearly double that during subsequent sleep. Comparatively little was excreted during the 24 hours immediately succeeding sleep, the usual amount being excreted, however, during the second 24 hours after sleep. During the sleep fast the amount increased steadily during the first 72 hours. That of the fourth day, taken from 9 a. m. to 9 p. m., instead of 24 hours, showed a decrease per hour, but being taken thus on a different basis from that of the first 72 hours deduction on the same basis is impossible. Less and less nitrogen was excreted per hour during the sleep fast and a relatively very small amount during sleep with increase in amount thereafter. The amount of phosphoric acid excreted was increased during sleep fast, relatively very small amount being excreted, however, during sleep, the amount increasing again subsequent to sleep. Thus the relative amount of nitrogen to phosphoric acid decreases as loss of sleep increases.

SLEEP IN RELATION TO NARCOTICS IN THE TREATMENT OF MENTAL DISEASE. By Henry Rayner, M. D. Journal of Mental Science, Vol. XLVIII, p. 460, July, 1902.

The author briefly discusses some of the well-known theories of sleep, and summarises his ideas as follows: In sleep there is unconsciousness without insensibility; in narcotic coma there is unconsciousness with insensibility; and in the mesmeric state there is disorder both of consciousness and sensibility. He then points out some of the physical differences between the sleeping and waking organism, and the physical disturbances which arise from the use of opium, chloral, sulfonal, etc. An important point is that the brunt of the narcotic action falls on the pyramidal cells of the brain. The author's position in regard to the use of narcotics is identical with that in regard to mechanical restraint; he uses them if necessary, but practically the necessity rarely arises.

W. R. D.

Book Reviews

La Migraine et Son Traitement. Par PAUL KOVALEVSKY, M. D. pp. 1-200. Paris, Vigot Frères, 1902.

Migraine has probably produced more pessimism and more therapeutic nihilism on the part of the laity as well as of physicians than almost any other disorder. Kovalevsky's book from the very beginning strikes an optimistic note, which is repeated at intervals, possibly it would seem to keep alive in the reader a hope which diminishes rather than increases as he approaches the last chapter. In dealing with the predisposing causes the author distinguishes a "similar" from a "heterogeneous" heredity. In the first case one or other of the parents or near relatives has suffered from migraine; in the latter the victims come from a neurotic stock, their antecedents having been afflicted with nervous disturbances, of which epilepsy is the most frequent manifestation, alcoholism, gout, mental disorders, etc.

In dealing with the exciting causes he says that every one may have headaches, but that only those who have inherited a peculiar condition of the central nervous system can have idiopathic migraine. He finds that in his experience the majority of cases begin between the ages of 11 and 15, whence it would appear that puberty exerts a predominating exciting influence. Although migraine is no longer to be regarded as a disorder confined to the cultured, nevertheless not a few intellectual giants have been numbered among the sufferers. Among the conditions which excite individual attacks are those connected with the intellectual life, the emotions, the sexual apparatus, faulty metabolism and various others affecting different individuals.

Pages 30 to 140 are devoted to the clinical picture. The author discusses the various types and gives illustrative cases mainly taken from his own experience. With others he finds all classifications unsatisfactory. "The physiological point of view admits only the typical forms of any given disorder; but just as the typical chemical reactions are met with only in the laboratory, so the typical clinical pictures are encountered only on paper." In support of the generally accepted view that epilepsy and migraine are very near akin, he gives the following reasons: (1) Migraine and epilepsy are hereditary diseases. Very often the parents of individuals suffering from migraine and epilepsy have had epilepsy or migraine. Migraine in the parents engenders epilepsy and migraine. On the other hand epilepsy engenders migraine and epilepsy, although migraine comes more often from migraine than from epilepsy,

whereas the latter comes more often from migraine than from epilepsy. (2) Sufferers from migraine often have brothers and sisters who are also afflicted in the same way. (3) Sufferers from migraine often have epileptic seizures, and still more often epileptics have attacks of migraine. Sensory epilepsy often is the equivalent of a genuine migraine. (4) Migraine and epilepsy begin in infancy, tend to become periodic and manifest themselves in attacks which are often provoked by accidental and unforeseen causes. (5) Both maladies are preceded by an aura. (6) Both disorders are followed by a condition of quiet and extreme fatigue. (7) The two disorders are often associated with autointoxication and certain diatheses, especially the so-called uric-acid diathesis. (8) In both disorders the parts of the body implicated may suffer from paralysis (monoplegia and ophthalmoplegia in migraine) as a consequence of over-fatigue. (9) Both disorders are considered incurable. (10) At the present time the outlook for both is more favorable.

The author holds that the pathological base of migraine is not to be looked for in anatomical but in physiological alterations. He believes that the brain cells have a certain predisposition, which under the influence of certain exciting causes may give rise to epilepsy or migraine.

Kovalevsky deals with his cases mainly by hygienic measures and tries to combat the existing degeneration. Diet is all important. The patients should be largely vegetarians, although a certain amount of meat—very rarely beef—is allowed. Change of air and a proper regulation of the daily life sometimes accomplish marvels. Alcohol and tobacco are interdicted. So far as drugs are concerned he prefers the bromides continued, with intermissions, for two years.

From the nature of the subject the book does not readily lend itself to abstracting. It shows a wealth of clinical experience and careful observation and while reading it with pleasure at the time the physician will undoubtedly obtain some fresh points of view and a renewal of his courage in the treatment of migraine. F. R. S.

Psychiatrie, für Aerzte und Studirende, bearbeitet von Dr. Med. Th. Ziehen, o-Professor an der Universität Utrecht. Zweite vollständig umgearbeitete Auflage. Mit 14 Abbildungen in Holzschnitt u. 8. Tafeln in Lichtdruck. Leipzig, Verlag von S. Hirzel, 1902.

Among the text-books of psychiatry, Ziehen's stands alone in being built on a definite psychology, as far as this is possible to-day. It forms a self-contained whole, a part of that series of publications with which Ziehen has covered practically the entire field of what pertains to neurology and psychiatry: epistemology, normal psychology, psychiatry, diseases of the brain, and anatomy of the nervous system. Together with the numerous monographic contributions, these works are the product of probably the most productive and most universal alienist of to-day.

The book is throughout expressive of a definite standpoint. There are no polemics in it, nor is there any discussion of the *views* of other writers, while *facts* reported in the literature are, as a rule, conscien-

tiously noted and referred to in not complete, but nevertheless very valuable foot-notes on literature. Even where other writers invariably allow some space to the opinion of others, in the chapter on classification, Ziehen follows his own plan without any further reference. There is no criticism of others, nor any attempt at defence against criticism.

The second edition is considerably enlarged beyond the first. The changes are smallest in the general part which deals with the pathological features of psychic activity in the order in which normal psychology is treated by Ziehen. The greatest change is found in the special pathology—a decidedly healthy sign in psychiatry whose glory must rest on a better knowledge of the special observations before it can soar to well-founded generalities.

In the general part, among the disorders of the intellectual tones of feeling, he adds "krankhafte Ergriffenheit"; the chapter on associations is re-cast; the chapter on etiology is enlarged; a brief outline of what to look for in autopsies is added.

In the special psychopathology, the new edition shows far more subdivision. From 24 headings of special forms, the list has grown to 58; and the corresponding text covers 400 pages instead of 180.

Ziehen is an uncompromising associationist. This gives his analysis a feature of precision and clearness which is most welcome to those students whose training leads them to operate with ideas and concepts for which only a long experience would furnish the substitutes for fact.

All mental happenings are divided finally into sensations, concepts or memory-images, intellectual tones of feelings and affects, associations of ideas and action. Consequently all the abnormal happenings are grouped accordingly. Every group of elements has its accurate definition and one inevitably carries off a feeling of great safety and accuracy. Under the heading of inhibition of thought, Ziehen describes forms of stupor and sums up as follows (p. 91): "The entire *trias* of the just-mentioned symptoms, aprosexia and inhibition of thought and motor inhibition, is also designated as stupor. Patients in such a condition are called stuporous. According to the form of manifestation of the motor inhibition, we distinguish therefore a stupor with resolution and a catatonic stupor, just as the flight of ideas, the inhibition of thought and the stupor which includes it, are either secondary or primary," etc.

Mania is characterized by (1) a cheerful mood (exaltation); and, (2) acceleration of the association of ideas; melancholia by a morbid primary depression and by a primary inhibition of thought, and frequently there is, as a third chief symptom, a motor inhibition. Acute hallucinatory paranoia is made up of hallucinations and illusions which give origin to delusions, in the typical forms without any primary disorders of affects or of association, which, however, come on very frequently as a secondary symptom. Stupidity is a more or less complete inhibition of all association of ideas and marked motor inhibition and apathy, etc.

Ziehen divides the mental disorders into psychoses which show from the first beginning a plain intellectual defect (in judgment and memory), and others which do not, and usually run their course without any defect. The former are essentially organic, the latter functional (in the old sense, of not furnishing any anatomical data). Secondary dementia forms a connecting link between the two groups.

The psychoses without defect are either simple or complex according to whether they run through one or more psychopathic states. The latter are much rarer and practically of little importance. The simple psychoses either set in with affective disorders (mania, melancholia—affective psychoses), or with disorders of sensation (hallucinations), or of ideas (delusions and obsessions), as in the intellectual psychoses: paranoia (simplex and hallucinatoria), stupor, states of obscuration, secondary deliria (of fever, etc.), psychoses from obsessions; then follow the psychopathic constitutions—abnormal states of hysteria, epilepsy and neurasthenia, etc., as long as they show no intellectual defect. The compound psychoses are either aperiodic or periodic.

The defect psychoses are congenital or acquired, and include in part the end stages of the above "constitutions," the organic defects, and a few special forms.

It would lead too far to sketch with any detail the subdivisions which correspond largely with the well-known traditional disease-pictures, but which for the sake of psychological conceptions are divided into groups, so that epileptic dementia is described in a totally different part of the book from the lighter form of epileptic insanity, although it must be difficult to decide in many cases to which group they properly belong.

Ziehen admits in his new edition a dementia hebephrenia (praecox), while Katatonia is, as in the first edition, an aperiodic "compound psychosis," belonging to the disorders without defect.

The book is rich in many good observations of traits and shows the remarkable literary zeal and the experience of its author. The clinical descriptions are mostly excellent compounds. But somehow one feels the oddness of the connections and divisions and groupings. The facts of empirical science do not all adapt themselves to a logically arranged normal psychology without the use of some force, and the book as a whole leaves, with all the logical order, the impression of a dictionary with a special method of groupings, which is not as stimulating as that of most of the purely empirical writers.

Considering the wide reputation of the author, the fact that the second edition appeared eight years after the first does not speak for a great popularity of the book in its first form. In the second edition, the beginner will be apt to be bewildered by the many headings. But the experienced alienist and the student under good direction will find much in the book that does full justice to the name of its author. In many respects it is the best reference book available to-day, and in this respect a good supplement to one's library.

A. Meyer.

Pamphlets Received

Optic Neuritis in the Young. By William Cheatham, M. D. Reprinted from The Louisville Journal of Medicine and Surgery, April, 1902.

Reprints from publications by George M. Edebohls, M. D.

Memorial of J. T. Eskridge, M. D., and Clayton Parkhill, M. D. Published by The Denver and Arapahoe Medical Society.

Treatment of Piles by the Injection of Carbolic Acid. By George W. Gay, M. D.

When to Call a Surgeon in Acute Abdominal Affections. By George W. Gay, M. D. Presented at the annual meeting of the New Hampshire Medical Society, May 25, 1897.

Acute Epizootic Leucoencephalitis in Horses. By W. G. MacCallum, M. D., and S. S. Buckley, D. V. S. Reprinted from The Journal of Experimental Medicine, Vol. VI, No. 1, November, 1901. Bulletin No. 80 of the Maryland Agricultural Experiment Station.

Soils and Fertilizers for Green House Crops. By H. J. Patterson and Thomas H. White. Bulletin No. 81 of the Maryland Agricultural Experiment Station.

Report of The Central Indiana Hospital for the Insane.

Report of the Massillon (Ohio) State Hospital.

On a new Method of Delivery by the Obstetrical Tractor. By E. D. St. Cyr, M. D. Monograph read before the West Chicago Medical Society.

The Cow Pea.

What say the Scriptures about Hell.

Appendicitis. By B. Merrill Ricketts, M. D. Reprinted from Cincinnati Lancet-Clinic, May 31, 1902.

The Vermiform Appendix as a Cause of Intestinal Obstruction. By J. E. Summers, Jr., M. D. Reprinted from American Medicine, May 24, 1902.

Personal Experience with Contused Gunshot and Stab Wounds of the Abdomen. By J. E. Summers, Jr., M. D. Reprinted from Western Medical Review, April, 1902.

Splenic Anæmia. By H. D. Rolleston, M. D. Reprinted from the Clinical Journal, April 16, 1902.

The Appendix Vermiformis and Cecum: A Comparative Study. By B. Merrill Ricketts, M. D. Reprinted from Journal American Medical Association, June 1, 1902.

Ligation of Arteries—Cocaine Anesthesia. By B. Merrill Ricketts, M. D. Reprinted from The Interstate Medical Journal, Vol. IX, No. 4, 1902.

Thinning Fruits. By E. P. Sandsten, Associate Horticulturist. Bulletin No. 82, May, 1902.

Investigation as to the Cause of Pithiness in Celery. Bulletin No. 83 of the Maryland Agricultural Experiment Station, College Park, Md., May, 1902.

Pennsylvania Hospital Report of the Department for the Insane.

Soil Survey Reports of Calvert, Cecil, Kent, and St. Mary's Counties. Reprinted from the Report on Field Operations of the Division of Soils for 1900.

Seventh Annual Report of the Lanark District Asylum, Hartwood, for 1901-1902.

Half-Yearly Summary

CONNECTICUT.—*Retreat for the Insane, Hartford.*—In his annual report, Dr. Stearns refers to efforts to impose a tax upon the Retreat, and indicates the general attitude of the community toward such an institution and the popular misconceptions.

He states: Some seemed to think it a private institution and conducted very much in the interests of those having it in charge. Others, that its management was like that of a hotel or a gas company, and should be so regarded and taxed. Others, that it was managed only for the wealthy portion of the community, and therefore that its patients should be taxed for treatment received.

These statements appeared to be made in all seriousness by different persons, notwithstanding the fact that not one of their authors had ever been inside the Retreat, or claimed to have had any actual information from its officers as to its methods of management. In fact, they made no claim of being familiar with the methods of management in institutions for the insane or other hospitals anywhere, and evidently knew little or nothing about them. The exhibition of their ignorance was phenomenal, while the opinions and statements of eminent experts and citizens seemed to be regarded as of little importance. Taxation was in the air, and evidently a foregone conclusion.

But the hearing before the committee of the Legislature furnished an opportunity to demonstrate conclusively the futility of the testimony of the appellants, and to show that the Retreat has been conducted as other hospitals of the State have, that is, in the interests of the people of the State; that more than seven-tenths of the patients from Connecticut during the last six years, the period covered by the statistics presented, had paid much less than cost; and further, that there has been no change in the purposes and methods of conducting the Retreat, except to improve them, during the last thirty years. Our only regret is that by as much as is required for the payment of taxes, by so much is the sum of our charity towards the people of the State who are so unfortunate as to need it, diminished.

It may be proper to state again that the Retreat has been and is now being conducted on the same principles and as fully as possible in a similar manner as the Hartford Hospital and other hospitals in the State are, that is, for the interests and we trust for the public good of the people of Hartford and the State. The only difference is that some of the bequests to the institution have been so utilized as to pro-

vide an income for the benefit of all patients, and thus avoid seeking assistance from the State or the benevolent citizens of Hartford. In view of the large number of calls which are made upon the benevolence of those able to give at the present time, one might be pardoned for concluding that our method of management would tend to the credit of the institution rather than otherwise.

However this may be, it must continue unless it is decided that the institution should be turned over to the State. If this course should be pursued, the State could erect additional buildings on the grounds, and easily double the present capacity. Such a step would not require a large expenditure by the State, and the institution would be free of taxation, whereas if any new additional or new buildings which are much needed, are erected by the present management, they will become liable to taxation by the city, and thus cripple our resources still further. Such a course might not be quite agreeable to those of the neighbors who were quite ready to present to the committee opinions on a subject about which they knew nothing, but it would tend to perpetuate the purposes of those who founded the institution so long ago for the benefit of the insane of the State. It may also be added that the State would doubtless be only too glad to receive such a property, as it could be had without cost, and it is in need of another institution for the insane.

INDIANA.—*Northern Indiana Hospital for Insane, Longcliff, near Logansport.*—Dr. Rogers reports a capacity of 800 patients; the installation of an air-lift system of waterworks, consisting of a duplex compressor, four deep wells and a covered reservoir, with a capacity of 360,000 gallons daily, recently placed in most satisfactory operation; also, in connection with this, a large underwriter's fire pump as an addition to existing equipment; the provision of cement floors for all basements and cellars throughout the hospital.

Special efforts during the last year to break up breeding places of mosquitoes in the neighborhood of the institution have been markedly successful in reducing the amount of malarial diseases.

IOWA.—On account of the retirement of Dr. Hill from the superintendency of the Independence Hospital, July first, and the opening of the new hospital for the insane at Cherokee, August fifteenth, several changes have occurred among the physicians in the four institutions.

At the end of September the staffs are as follows:

Mount Pleasant.—C. F. Applegate, Superintendent; F. T. Stevens, First Assistant Physician; A. R. Lemke, Second Assistant Physician; Anne Burnet, Woman Assistant Physician; G. M. Kline, Pathologist.

Independence.—W. P. Crumbacker, Superintendent; J. C. Doolittle, First Assistant Physician; A. S. Hamilton, Second Assistant Physician; Joseph C. Ohlmacher, Pathologist; Lucy F. McPhee, Woman Physician.

Clarinda.—Max E. Witte, Superintendent; George Boody, First Assistant Physician; J. W. Wherry, Second Assistant Physician; C. D. Harlan, Fourth Assistant Physician; Pauline M. Leader, Woman Physician.

Cherokee.—M. N. Voldeng, Superintendent; O. C. Willhite, First Assistant Physician; B. R. McAllister, Second Assistant Physician; Lena R. Beach, Woman Physician.

On the fourteenth of June the Board of Control elected Dr. Crumbacker, of Athens, Ohio, as superintendent of the Independence State Hospital, for a term of four years, from July first. Dr. Hill, who retired at that time, went immediately to Des Moines, the capital of Iowa, and there opened an office for the practice of his profession as a specialist in nervous and mental diseases. Dr. Joseph Ohlmacher, who is the pathologist at Independence, entered upon his duties the first of May. He graduated from Rush Medical College in 1901, and he worked in the department of pathology of the North-Western University Medical School in Chicago under the direction of his brother, Professor A. P. Ohlmacher.

Dr. George Boody, who became first assistant physician at Clarinda on the first of July, was second assistant physician in the hospital at Kankakee for several years and has occupied a similar position in the hospital at Independence for the last seven years.

Dr. Voldeng served eight years as an assistant at Independence; spent one year studying in Germany and five years practising in Des Moines. Dr. Willhite has been second assistant physician in the Iowa Institution for Feeble Minded Children for several years.

The transfers of patients in August were as follows: 306 from Independence to Cherokee, 252 from Clarinda to Cherokee, 67 from Mt. Pleasant to Independence and 121 from Mt. Pleasant to Clarinda.

The normal capacity of the Iowa hospitals is 1000 at Independence, 900 each at Mt. Pleasant and Clarinda, 800 at Cherokee. There are ninety-nine counties in Iowa and they have been so apportioned as to give each hospital about one-fourth of them.

A new law was enacted by the legislature last winter making provision for inebriates and persons addicted to the use of narcotics. In accordance with the provision of the new law, the board of control has required one or more wards in the hospital at Mt. Pleasant to care for such cases. They are not admitted into any of the other three state hospitals. This law took effect on the fourth of July and cases are now sent to Mt. Pleasant under this law at the rate of about twenty-five a month. Thus far five or six women have been consigned to the hospital on this account. This new provision for class of unfortunate persons will enable the medical profession and the philanthropists and the lawyers of Iowa to arrive at some valuable conclusions.

The legislature manifested unbounded confidence in the Board of

Control of State Institutions in Iowa and in their recommendations; placing at their disposal a lump sum of $869,577.50, for the constructing, repairing, supplies and contingent funds of the thirteen institutions which are being looked after by the board of control. An appropriation of $138,000 was made for Cherokee Hospital at an early date in the session of the legislature in order to hasten the work of preparing the new institution for use as soon as possible. It is supplied at the outset with an industrial building in which to employ patients, a fire station, a conservatory, summer houses for patients' use, barns and a detached building to be used as a pathological laboratory. The appropriation for Cherokee was sufficient to supply not only microscopes and other equipments for the laboratory but also most desirable musical instruments, furniture and books for the wards.

Perhaps one of the most remarkable features of the appropriations placed in the hands of the Board of Control was the money supplied with which to buy land for the purpose of enlarging the farms connected with the four hospitals. 440 acres were purchased at Independence so that the farm now contains 1200 acres. 230 acres have recently been added to the Cherokee farm so that it contains 830 acres. 308 acres have been added to the Clarinda farm making its present size about 1000 acres. But the appropriation of $25,000 for land at Mt. Pleasant has not yet been expended because it cannot be secured at a reasonable price.

With the funds thus secured this year the Iowa hospitals for the insane will be placed in fine condition and facilities will be furnished for as good care and treatment of the insane as are provided in any state in the Union.

Before the legislature adjourned last April provision was made for the detention and treatment of dipsomaniacs and inebriates as follows:

The Board of Control is hereby directed to provide for the detention and treatment of dipsomaniacs, inebriates and persons addicted to the excessive use of morphine or other narcotics, in one or more of the hospitals for the insane at the discretion of said Board. Said department thus provided for to be designated as a hospital for inebriates.

All dipsomaniacs, inebriates and persons addicted to the excessive use of morphine or other narcotics, who shall be citizens of the State of Iowa and residents of the county from which they might be committed to the hospital for inebriates may be brought before the district court or judge of the county where they reside for examination and commitment to said hospital for inebriates. Their examination, trial and commitment shall be governed by the same statutes as now apply to and govern the examination and commitment of incorrigibles to the state industrial school. If it shall be determined by said district court or judge, that such person is addicted to dipsomania, inebriety or to the excessive use of narcotics, he or she shall be committed to such hospital for inebriates, as may be established by the Board of

Control as above provided for. The term of detention and treatment shall be, for the first commitment not less than one, nor more than three years; and for the second commitment not less than two years, nor more than five years. The governor shall parole a patient on conditions named in the following section.

If after thirty days of such treatment and detention a patient shall appear to be cured, and if the physician in charge and the superintendent of said institution shall so recommend, the governor shall parole such patient, provided that such patient shall pledge himself or herself to refrain from the use of intoxicating liquors as a beverage, or other narcotics, during the remaining part of his or her term of commitment and shall avoid frequenting of places and association of people tending to lead them back to their old habits of inebriety.

And shall send a report on the first day of every month during term of parole to the governor, which report must be inquired into and approved as correct by the clerk of the district court of the county wherein the patient resides, and said patient shall furnish the clerk of the district court with satisfactory evidence of his sobriety and good habits.

And if at any time the patient on parole, for any reason fails to make the above report, the sheriff of the county wherein such patient resides shall without further writ or warrant, return said patient at once to the hospital from which he or she has been paroled on receiving notice of such failure from the clerk of the district court of the county wherein the patient resides, or any three reputable citizens thereof. And the patient so returned shall be detained and treated during the full term of his commitment.

The expense of trial, commitment and treatment of such persons so committed under the provisions of this act shall be borne and paid in the same manner and out of the same fund as the expenses of insane patients are borne and paid, and the estates of such patients shall be liable therefor to the same extent as in the case of insane persons.

MASSACHUSETTS.—*Danvers Insane Hospital, Hathorne.*—A small building containing rooms for three patients, an aseptic operating room and complete sterilizing apparatus for surgical work, has been erected at the Danvers Hospital. This building is detached from the wards and it is contemplated that in case a serious operation is required that the patient will be under as favorable conditions as though in a properly conducted general hospital.

Boston Insane Hospital, New Dorchester P. O., Boston.—The City Council in 1901, with the approval of the Mayor, Hon. Thomas N. Hart, gave the Insane Hospital Department an appropriation of $350,000 for buildings and land.

The Trustees have purchased land bordering on Canterbury and

Morton Streets, containing 1,082,087 square feet (nearly 25 acres) for $54,104.35. This land gives direct communication between the Department for Men and the Department for Women and is available for exercise grounds and for tillage.

The Trustees have decided that the most urgent need of the Hospital is a suitable provision for the proper classification and care of cases of insanity that are curable and are having plans prepared for buildings suitable for the care of acute and curable cases of insanity. Plans have been drawn for an observation building, in which all cases that require special watching can be placed. This building will provide for thirty-two patients. Plans have also been drawn for a building to accommodate twenty excited patients.

To the Trustees of the Boston Insane Hospital:

The sixty-third annual report of the Hospital for the year ending January 31, 1902, is respectfully submitted.

The movement of population for the calendar year was as follows:

	Men.	Women.	Total.
Patients in the Hospital, Jan. 1, 1901.....	253	251	504
Admitted	128	189	317
Whole number treated	381	440	821
Discharged	122	180	302
Remaining in the Hospital, Dec. 31, 1901....	259	260	519
Daily average in the house	251.9	249.45	501.35

These figures show a few less admissions than for several years. There have been noticeably fewer senile cases admitted.

Of those patients discharged, there were fifty-six recovered (this is 17.3 per cent of the number admitted and 24 per cent of the number discharged, excluding those transferred), twenty much improved, thirty-nine improved, and ninety-six (of whom sixty-nine were transferred to other hospitals or asylums) not improved. Eighty-seven have died, which makes the death-rate 10.5 per cent of the whole number treated and 17.3 per cent of the daily average population. The average age at death was 61.03 years.

This is an unusual death-rate for this hospital, and the average age at death is higher by five years than last year. The high death-rate is clearly the result of receiving so many old patients the past two years. There has been no epidemic nor death from infectious disease. There has been only one death from phthisis. There has been one death by suicide. A woman who had been depressed had shown marked improvement and was sent to the convalescent ward. Here, by ingeniously circumventing what had been considered perfect safeguards, she drowned herself in a bath tub.

Those of our patients transferred to the Medfield Asylum the past few years have been, for the most part, the younger ones, and those who are likely to require institutional care for a number of years.

This has resulted, as was intended, in affording a more permanent relief from overcrowding, and this year we have been obliged to ask for fewer transfers than for several years. This policy tends, of course, to increase the death-rate here.

—*State Asylum for Insane Criminals, Bridgewater.*—A nurses' home with thirty beds has been building during the year and is almost completed. This is a fire-proof building with billiard-room on first and reading-room on second floor, and rain bath in basement. The sleeping-rooms all have a southern exposure. This building is expected to be completed within the appropriation of $15,000, although the original plan on which the estimation was based was for only twenty-five beds.

Fifteen acres of tillable land is being enclosed by a stone and brick wall, that the more dangerous class of patients may be allowed to work out of doors without much risk of elopement. This will give abundant room for a base-ball field and will take in a fine oak and pine grove for shade.

There were, September 1, four hundred and thirty-one patients in the asylum, and there have been seventy-two admissions in eleven months, and seventeen deaths. The death-rate promises to be lower than last year, when it was less than 5 per cent on the daily average of patients. Hydrotherapeutics is given a leading place in treatment, as heretofore, with continued satisfaction.

Nine of the cases admitted were arrested for crimes against the person, including two cases for manslaughter and three cases for murder. Of other causes of arrest, vagrancy heads the list with twenty-four. Breaking and entering and drunkenness come next, in point of numbers, with nine each. Of the seventy-two persons admitted, fifteen were manifestly congenitally deficient. Twenty have been insane less than one year, sixteen more than two years, and seven more than five years.

Concerning the form of mental alienation, imbecility and alcoholic insanity head the list in numbers admitted with sixteen each, while there were four cases of paresis and six cases of epilepsy among the admissions.

Twenty-nine of the patients admitted were foreign born (41 per cent). The father's birthplace was ascertained in fifty-nine of the seventy-two cases admitted, and was foreign to the United States in forty-eight (82 per cent). The mother's birthplace was foreign in 83 per cent of the sixty cases admitted, in which the fact could be ascertained.

MICHIGAN.—*Eastern Michigan Asylum, Pontiac.*—Additional advantages in the care of hospital patients have been secured by the extension of verandas, protected by wire guards. This will permit of a larger number of feeble and helpless patients spending a greater portion of their time in the open air. A more convenient autopsy-room has been

erected in connection with the men's hospital. An additional and abundant supply of water has been secured to the institution, by sinking a well 12 feet in diameter and 60 feet to water-bearing gravel drift. From the water line, drive-wells are sunk to an additional depth of 50 feet. Pumps of extended pattern operated by an electric motor, are located in a pump-house directly over the well.

NEW JERSEY.—*The New Jersey State Hospital, Morris Plains.*—The organization of the medical club has been a source of much benefit to the medical staff in that it brings together at regular intervals all its members for the purpose of discussing in detail the various interests of the hospital, both clinical and administrative.

The new building, known as the Dormitory Building, was formally opened on November 21, 1901. Addresses were delivered by Governor Foster M. Voorhees, the President of the Board, Dr. Henry M. Hurd, Dr. James M. Buckley, and Dr. B. D. Evans, the Medical Director, and others. It accommodates at present 450 patients, with capacity for over a thousand. It is built on the day-room and dormitory plan, and has an associate dining-room which is very attractively decorated with palms and flowers. The large amusement hall is being fitted out with a stage of modern type, with fine curtains, etc., and is lighted throughout by electricity. With the aid of the able orchestra of the hospital, this amusement room and stage should give good and satisfactory results.

The Library has been considerably enlarged, indexed and classified. Every new work in psychiatry and nervous diseases of any value can now be found on the shelves.

The new Pathological Laboratory is situated on the 4th floor of the Dormitory Building, and leaves nothing to be desired in the way of fine lights and appointments. It contains six rooms, consisting of rooms for micro-photographic work, microscopic laboratory rooms, hardening closets, library, office, etc. It has certainly supplied a long-desired need and will now make the clinical and pathological work of the hospital more complete.

Six surgical rooms have been fitted up, three on each side of the house, where gynecological work and general surgery can be done.

The Training School for Nurses is giving good results, and improving the character of the ward work.

A separate building for nurses, where they would be enabled to have some relaxation from their arduous duties, and not be obliged as at present, to spend nearly all their time in the wards in close contact with the insane, has been under the consideration of the Board of Managers for some time and there is no doubt but that its construction will soon be taken in hand.

—*Fair Oaks Sanatorium, Summit.*—Dr. Eliot Gorton, for the last fourteen years First Assistant Physician to the New Jersey State Hospital at

Morris Plains, resigned his position July 1, 1902, and has opened a private sanatorium at Summit, N. J., known as Fair Oaks, for the treatment of mental and nervous diseases and cases of alcohol and drug addictions.

NEW YORK.—*Utica State Hospital.*—Diphtheria made its appearance in the hospital the latter part of May and has continued until the present time. There have been twenty cases, including both men and women nurses and patients, the number of women predominating. A small building has been utilized as an isolation hospital and all cases removed from the wards at the first indication of the disease. The outbreak seems to be well under control at the present time and it is hoped that no further cases will appear.

—*Manhattan State Hospital, West, Ward's Island, New York City.*—No new buildings have been constructed, but many important alterations and repairs have been made. A new passenger dock has been built on the west side of the island, together with a new float for landing passengers from the small steamer and electric launch.

The steamer Wanderer, which has been chartered by the Hospital for the last six years, was recently purchased and is now the property of the State. This steamer is well adapted to the service required, viz., that of bringing patients from Bellevue Hospital, large numbers of visitors to patients of both Manhattan State Hospital, East and West, and freight for the two hospitals from the dock on the Manhattan side at East 116th Street. During the summer months it has been used by both hospitals to give weekly excursions to the patients, either down New York Bay or up the Sound. These excursions are fully appreciated by the patients. They are always accompanied by physicians and a large corps of nurses.

During the summer months, salt-water bathing is enjoyed by the patients, twice a week for women, and once a week for men.

The Training School closed May 28 with a graduating class of three and a senior class of twelve. The Post-Graduate course, which is intended for all graduates of the Training School, has been a prominent feature of the school curriculum, has been well attended, and at the end of the school year an examination was held bearing upon the subjects taught, with the result that eight received the post-graduate certificate.

On May Day, appropriate exercises were held on the lawn. Field Day sports have been held May 30, July 4, and Labor Day, September 1, patients and employees taking part in the events, and prizes were given to the successful contestants. An exhibition of fireworks was given the evening of July 4.

During the past half-year, the facilities for performing surgical work have been greatly developed and improved. At the present time,

weekly clinics are being held in the operating-room, and surgical operations are performed by Dr. Leroy Broun of the Woman's Hospital, assisted by the hospital staff. This work mainly relates to abdominal and uterine surgery, and much relief has been afforded in a surgical way. Adjoining the operating-room of the hospital ward is the electrical room, which has been furnished with a very complete apparatus, including a static machine and accessories for making X-ray examinations, and also with a combination adaptor for 110-volt current, designed for producing faradic, galvanic, sinusoidal, cautery and diagnostic currents. Many examinations by means of X-rays have been made of various parts of the body for diagnostic purposes, and in several instances skiagraphs have been made. We have found this machine very useful in examining for fractures and also in lung diseases.

After the completion of the new Verplanck dining-rooms mentioned in the last SUMMARY, the old dining-rooms were abandoned and during the past spring, alterations were made adapting these rooms to the use of the New York State Pathological Institute, under the directorship of Dr. Adolph Meyer. Careful clinical studies are made of selected cases, under the supervision of Dr. Meyer. Such cases are from time to time sent to a certain designated ward for special observation and study.

As heretofore, occupation and amusement enter largely into the treatment of patients. The hospital maintains an excellent orchestra composed of young women employees. Dances are given two or three times a week—in summer on the lawn under the trees, and in winter in the Amusement Hall. The band of the East Hospital, supported in part by the West Hospital, comes twice weekly to play for the patients.

Several times during the year, vaudeville entertainments are given by employees of the hospital, as well as by persons not connected with the institution.

In addition to these methods of diversion, in the summer months garden parties are formed and a large number of women patients are employed out of doors, cleaning the lawns and doing useful work in the gardens.

The road crossing the island from the passenger dock has been cut down and regraded. This was an extensive piece of work, but it was found important to have it done.

The nurses' home and the men employees' home have been entirely painted inside, and the smoking-room in the men's home has been given a coat of hard finish. The building on the dock at East 116th Street has been entirely repainted.

During the past year, the insanity law of New York State was modified to a considerable extent, and in accordance with Section 31, Chapter 26, of the Laws of 1902, the Board of Managers was abolished and a Board of Visitation, consisting of five members, provided for instead.

Each Board of Visitors of the various hospitals is to elect from its members a president and a secretary. "Each of such boards shall by a majority of its members visit and inspect each hospital for which it is appointed at least monthly, and as a board or by any of its members when directed by the Governor." Up to the present date, no Board of Visitation has been appointed for this hospital. The new insanity law directs that the Superintendent shall act as treasurer of the hospital.

—*Manhattan State Hospital, East, Ward's Island, New York City.*—The camp for patients suffering from tuberculosis which was established June 1, 1901, has continued in use throughout the intervening period, and an average of twenty patients has therefore been under treatment virtually in the open air for fifteen months. Other temporary camps have been established during the present summer, one of them devoted to women patients suffering from tuberculosis and other conditions such as had already been treated among the male patients in tents. There are now three camps in the service, containing in all one hundred patients, the third being assigned to demented and uncleanly men. The success of the system has been very satisfactory, all the different classes occupying the tents having been much benefited.

The electrical room established a year and a half ago has been enlarged in the matter of apparatus, etc., and a new hydrotherapeutic apparatus has been installed in another room attached to the reception ward. Treatment of patients in both rooms has been extended, and has proved very beneficial. A large room has been fitted up as a gymnasium, with gymnastic and calisthenic apparatus, and is in daily use, especially through the winter months.

—*Gowanda State Homeopathic Hospital, Gowanda.*—Two three-story pavilions are rapidly approaching completion for the accommodation of 450 patients, equally divided between the two sexes. When these buildings are finished, the normal capacity will be 700.

—*Craig Colony for Epileptics, Sonyea.*—Though the capacity of the Colony has greatly increased during the past year and the population has grown accordingly, yet this has been sufficient merely to accommodate a very small percentage of those applying for admission. The capacity is now taxed to the utmost and no appreciable number of new patients can be cared for until additional buildings are erected. The increase in capacity of late has been due to the opening of two infirmaries, one for each sex, on June 10, 1902. Each of these buildings contains forty patients at present: the number being made up of infirm, untidy, idiotic and inappreciative patients.

Special provision is also made for the care of mentally disturbed cases of which there are always a few in a large epileptic population.

The intention is to increase the capacity of the infirmaries at an early date in order to provide for the increasing number of patients who are suitable for such care.

Two other new buildings have recently been completed and occupied; the new wing of the trades school building and the storage and bakery building. The trades school building now has room for all the shops; the carpenters, printers, mattress-makers, tailors, painters, etc., each having separate accommodations. The new room for the Sloyd School is also in this building and has ample accommodation for the further development of this line of work. The new storage building is a two-story and basement structure well arranged for the care of the various stores of an institution of this kind and with an annex containing the bakery. This building is situated on a switch of the Pennsylvania Railroad track, which does away with the necessity of carting from trains to the store.

Considerable work has been accomplished in the way of grading and planting trees and shrubs about the various cottages.

A system of roof drains has been put around the buildings of the women's group, connecting with a storage reservoir capable of holding 100,000 gallons, for the purpose of supplying the laundry with soft water. This will result in a great saving, as the ordinary water at the Colony is extremely hard.

Among other recent improvements may be mentioned a green-house which has recently been finished, the placing of all electric wires under ground, the cleaning and improvement of the filter beds of the sewage disposal plant, and the installing of a steam sterilizing apparatus in the basement of the trades school building. Work has also been started on the new bridge across the Kishaqua Creek. When the bridge is completed and the highway leading thereto is changed, much of the public traffic which now goes on through the Colony grounds will be diverted; the Colonists will have the entire use of one bridge, and be freed from the danger to which they are subjected by using the present bridge, which is also used by the public.

The medical equipment has been increased by the installation of a static machine with the attachment necessary for X-ray work. Several hundred new books have been added to the medical library and this library has been carefully catalogued and indexed and placed in a room in the Administration building, where it is accessible at all times to the medical staff.

The employees have organized an association for the benefit of themselves individually and as a body, as well as for the upholding of discipline and the preservation of the good name of the institution.

Drs. George M. Gould and Arthur G. Bennett have examined the eyes of some seventy-five patients and fitted glasses with a view of carefully testing the possible effects of such treatment on the frequency and character of the epileptic attacks. The result of this experiment

will be published after sufficient time has elapsed to thoroughly test its efficacy.

The last legislature enacted a law providing for the reimbursing of the State for the care and treatment of patients at the Colony by the relatives of such patients if of sufficient financial ability. The new law puts the Colony, in this respect, on much the same footing as the New York State Hospitals and provides for the appointment of an agent whose duty it shall be to investigate the financial condition of such relatives of patients as are legally liable for their maintenance.

There are now 808 epileptics at the Colony.

—*The Long Island Home, Amityville, L. I.*—A few months ago an adjacent lot of 30 acres was purchased, on which is located a beautiful cedar grove with a stream of fresh water running through it. A cottage of 17 rooms is being constructed on this lot and will be completed about December 1. This is destined to be the center of a group of buildings for voluntary patients, particularly those more in need of general sanitarium treatment, especially cases of incipient mental and nervous affections; consequently physical therapy will have a large place in the methods of treatment followed, and this idea has in a large measure contributed in the selection of an assistant, who has had some years' experience in the use of such methods.

—*Marshall Sanitarium, Troy.*—Important alterations have just been completed in the Marshall Sanitarium, Troy, N. Y. Six bath and toilet rooms have been constructed with tile floors and wainscoating, and plumbing of the finest class obtainable. New hard-wood floors have been put down in various halls, and metal ceilings have been put up where needed. A new staircase of three flights and of a practically fire-proof character has been erected in the second section of the buildings, and for the purpose of fire protection a fire wall has been constructed which divides this building into two complete sections. A new dining room has been constructed on the first floor, and the whole building has been painted throughout.

These changes render it possible to make a proper classification of patients and the appropriate division of the sexes which had been impossible before.

North Dakota.—*North Dakota Hospital for Insane, Jamestown.*—At the close of the last biennial period, June 30, 1900, there were under treatment 383 patients, of whom 207 were men and 176 women, and for the period the average number of inmates present daily was 190 men and 169 women; 359 in all. Now during the past two years the average number has been 221.35 men and 179.75 women, or 401.10 total average number.

The per capita expense during the period, including salaries of resi-

dent officers, is $172.22 per annum, and exclusive of officers' salaries is $161.84.

The health of the patients, officers and employees has been of the best. The death-rate among the patients is greatly increased by the high mortality among those cases which are often sent in a dying condition, and the old chronic cases present in the hospital since its opening in 1885.

During the biennial period there have been performed 38 operations on men and 99 operations on women. The much larger number of operations performed on women is of course due to the prevalence of diseased conditions incident to sex and maternity susceptible of improvement or cure through surgical interference.

There is no operating-room in the hospital and consequently all surgical work has to be done either in some room or the wards, or in the pharmacy. None of the rooms at our disposal are adapted for such purposes.

During the period autopsies have been held on 22 males and 29 females.

The increasing number of patients and the present overcrowded condition of the wards for women make it imperative that additional room be provided for the women patients by the next legislature of our state. The last female ward building was erected in 1888, 14 years ago, and was originally intended to provide for about 20 patients on a ward; it now accommodates on an average 35 on a ward. The other ward building for women was built in 1885. There are now only these two ward buildings for women, while there are three for men. The wards for women are everywhere crowded, and rooms intended for a small number of beds now contain cots so closely packed together that patients have to climb into the beds from the foot, as the sides of the beds are in contact. The next legislature will be called upon to face the alternative of providing another ward building for women or requiring the various counties of the State to furnish accommodation for the care and treatment for a portion of their own patients in the counties themselves. The latter proposition would be inconvenient and costly to the counties.

A new building for the especial care of the sick and those under surgical treatment is absolutely demanded in order to give the best results in the handling of this department of the hospital work.

The want of a proper operating-room with conveniences for sterilization of instruments, clothing, etc., and of wards set apart for the care of surgical cases has greatly increased the difficulty in getting the best results from any operation performed here. A separate building for the care of acute intercurrent disease and with facilities for operation on and proper after care of those cases requiring surgical intervention would increase greatly the percentage of improved and cured. This action would itself tend to relieve the overcrowded condition of the

women's ward; though not sufficiently so to obviate the necessity for the erection of another building. There is also a great lack of room for the accommodation of employees in this hospital; many of them being cooped up in the attics of the different buildings, and there should be some provision made for their sleeping quarters apart from the scene of their labors during the day.

There were originally 640 acres of land purchased for the institution, and 80 acres were afterwards added, only part of which was adapted for farming purposes. Of the first purchase, about 320 acres were adapted for farming and garden purposes, the remainder only for pasturage. On the agricultural land, in 1901 there were raised on the farm at the hospital 5749 bushels of oats, 2326 bushels of barley, 223 bushels of millet, 130 tons of millet hay, and 240 tons of fodder, all used for the feed of stock. Not an acre of the tillable land but is utilized; 5 acres planted in grass this season yielded 6 tons of hay. All the milk for the institution is obtained from the cows pastured and fed on the Asylum farm, and about 120 gallons per day are obtained. There is no attempt to make butter as the supply of milk is insufficient for the necessities of those who are restricted wholly or in part to a milk diet. The entire herd of cows has been subjected to the tuberculin test.

There is needed the addition at least of a half a section of good farm land which can be made to yield much revenue with scarcely any additional expense for the work. Such land can be bought at present prices for about $15 per acre, and would be an investment very profitable to the State. As it is, some farm land has to be rented.

Occupation for the insane is in North Dakota to be supplied mainly in the line of out-door employment, on the farm and in the garden for the men, and in domestic occupation for the women. By far the larger part of our patients have been accustomed to these occupations before coming here and naturally tend to take up the same line of work when opportunity offers. The obligation consequently resting on the State to provide plenty of land for tillage and pasture should be noted now while the opportunity is still with us to acquire land in the vicinity of the hospital at moderate prices.

OHIO.—*Massillon State Hospital.*—On August 20 the contract was awarded for the construction of cottages 1, 2, and 3, and 6, F, and Nash cottages, for the sum of $149,937. These six cottages will increase the accommodation of this institution 517, and bring the capacity up to 1425. Cottages 1, 2 and 3 are for the better class of men patients; cottage 6 for a more disturbed class; cottage F for a semi-chronic class of women patients, and Nash cottage for the demented and infirm women patients. Nash cottage will accommodate 140 patients, will contain a kitchen and dining room and be practically an independent cottage. The Ohio Statute requires that all insane shall be cared for in State hospitals by June 1, 1903. It will probably not be possible to

take care of all the patients by that time, but by the autumn of 1903 certainly all the insane in the State of Ohio will be cared for in State Hospitals, a longed-for desideratum.

VIRGINIA.—*South-Western State Hospital, Marion.*—The South-Western State Hospital is now undergoing some long-needed repairs. Two new electrical dynamos and a new switchboard are being installed, to replace the old and wornout ones, which have been in use for 18 years. A new granolithic floor, on steel I beams and corrugated iron arches, has been placed in the general kitchen; a new operating room, with all up-to-date fixtures and appliances, is now being opened for use of the hospital; a complete change and renewal of the old boiler plant is now under contract and in course of construction, which will replace some of the boilers of 1887 by new, improved steam boilers and other improved appliances, which will effect a great saving in heating and lighting expenses. These and other improvements, which have been long needed, were provided for by an appropriation of the Legislature last winter for this purpose.

The experiment is again being tried of sending to their homes and to the county almshouses many old and apparently harmless patients, in order to make room for acute and violent cases. How long before many of them will be again adjudged insane and recommitted to the State Hospital remains to be seen. These cases accumulate in most hospitals and will do so always where such poor accommodations and improper supervision of county almshouses exist.

The new pavilion opened last year upon the male side (an exact counterpart of the one opened upon the female wings) gives this hospital now a capacity of about 500, and some better facilities for proper classification.

—*Central State Hospital, Petersburg.*—A pathological and bacteriological department has been established. A new addition to the laundry has been constructed and fitted up with metallic dry room, washer, sterilizer, and other machinery. A 60,000-gallon steel water tank has been constructed and contract for another awarded, and same equipped with hose, etc. Two pumps with 1200 gallon capacity, a 100 horsepower boiler have been purchased, and a system of fire protection introduced. A new pump house will be built at once. A garbage furnace has recently been built.

WEST VIRGINIA.—*West Virginia Asylum for Incurables, Huntington.*—The West Virginia Asylum for Incurables, located at Huntington, was reorganized a little more than a year ago and an entire new board appointed by the Governor. Dr. L. V. Guthrie, Superintendent of the Second Hospital for the Insane of West Virginia, was appointed superintendent, and Dr. W. H. Wilson, assistant physician. At the time of

the reorganization the institution had 54 patients, but today the enrollment is 150, which is the present normal capacity.

During the present fiscal year a new powerhouse and electric light plant has been constructed and placed in operation, and a new laundry of the most modern equipment has just been completed. The water supply for the institution, which had heretofore been inadequate, has been enlarged and made so that it is entirely satisfactory. The city of Huntington has opened a new street, which will put the institution in a more direct connection with the city.

At present two buildings are being constructed of pressed brick and stone trimmings, which will cost about $90,000, and are to be completed by the 1st of February. These buildings will, when completed, furnish accommodations for 300 additional patients.

Appointments, Resignations, Etc.

NOTE.—Changes in the administration of the State hospitals of Iowa are recorded in the Half-Yearly Summary of this issue of the Journal.

ADAMS, DR. BOB O., resigned as Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, Ind.

ALLISON, DR. H., resigned as Junior Physician at the Manhattan State Hospital East, New York City.

BAIER, DR. FLORENCE C., resigned as Second Assistant Physician at the North Dakota Hospital for Insane, Jamestown, N. D.

BAKER, DR. R. D., promoted to be Fourth Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

BARRETT, DR. ALBERT W., appointed Pathologist to the Danvers Insane Hospital, Hathorne, Mass.

BELING, DR. C. C., promoted to be Third Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

BESSE, DR. EARLE E., appointed Assistant Physician at the Danvers Insane Hospital, Danvers, Mass.

CHAPMAN, DR. R. W., resigned as Assistant Physician at the Essex County Hospitals for the Insane, Newark, N. J.

CLARKE, DR. HOMER, formerly Assistant Resident Physician at the City Insane Asylum, Baltimore, Md., appointed Assistant Physician at the Eastern Michigan Asylum, Pontiac, Mich.

COOPERNAIL, DR. GEORGE L., resigned as Assistant Physician at the Long Island Home, Amityville, N. Y.

COSSITT, DR. H. A., appointed Second Assistant Physician and Pathologist at the New Jersey State Hospital, Morris Plains, N. J.

CROFOOT, DR. WELLINGTON A., resigned as Medical Interne at the Manhattan State Hospital West, New York City.

CUNNINGHAM, DR. SAMUEL R., resigned as Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, Ind.

CURTIN, DR. W. E., appointed Medical Interne at the Manhattan State Hospital, East, New York City.

DISNEY, DR. F. A. E., appointed Clinical Assistant at the Manhattan State Hospital, West, New York City.

ELDER, DR. EDWARD C., appointed Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, Ind.

ELLIS, DR. A. L., resigned as Clinical Assistant at the Manhattan State Hospital, East, New York City.

FOWLER, DR. ROBERT W., promoted to be Assistant Physician at the Manhattan State Hospital, Central Islip, N. Y.

FRISCHBIER, DR. CHARLES P., formerly of the Manhattan State Hospital, West, New York City, appointed Assistant Physician at the New Jersey State Hospital at Trenton, N. J.

GARRISON, DR. W. MILES, appointed Fifth Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

GIGNOUX, DR. HARRIET A., resigned as Medical Interne at the Craig Colony for Epileptics, Sonyea, N. Y.

GORTON, DR. ELIOT, resigned as First Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

GUTHRIE, DR. L. V., formerly Superintendent of the Second Hospital for the Insane of West Virginia, appointed Superintendent of the West Virginia Asylum for Incurables, Huntington, W. Va.

HARMER, DR. CHARLES L., appointed Junior Assistant Physician at the Massillon State Hospital, Massillon, O.

HENDERSON, DR. J. M., resigned as Second Assistant Physician at the Central State Hospital, Petersburg, Va.

HILL, DR. ELEANOR J., appointed Second Assistant Physician at the North Dakota Hospital for Insane, Jamestown, N. D.

HORSFORD, DR. FREDERICK C., appointed Sixth Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

HYDE, DR. F. G., resigned as Junior Physician at the Manhattan State Hospital, East, New York City.

JOHNSON, DR. KATHERINE D., resigned as Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, Ind.

LEADER, DR. ALICE M. F., promoted to be Woman Physician at the Manhattan State Hospital, Central Islip, N. Y.

MADISON, DR. JAMES D., resigned as Assistant Physician at the Danvers Insane Hospital, Hathorne, Mass.

MAGNESS, DR. FRANK H., Assistant Physician, transferred from the Manhattan State Hospital, West, to the Manhattan State Hospital at Central Islip, N. Y.

MALLON, DR. P. S., promoted to be First Assistant Physician at the New Jersey State Hospital, Morris Plains, N. J.

MAY, DR. JAMES V., appointed Junior Physician at the Manhattan State Hospital, Central Islip, N. Y.

MCCORN, DR. ALFRED, appointed Assistant Physician at the Long Island Home, Amityville, N. Y.

MCGEORGE, DR. J. M., appointed Junior Assistant Physician at the Massillon State Hospital, Massillon, O.

MILLS, DR. G. F., resigned as Junior Physician at the Manhattan State Hospital, East, New York City.

MUIR, DR. A. PARKER, resigned as Junior Physician at the Manhattan State Hospital, East, New York City.

NAIRN, DR. B. ROSS, Junior Assistant Physician, transferred from the Long Island State Hospital, Kings Park, N. Y., to the Hudson River State Hospital, Poughkeepsie, N. Y.

PARISH, DR. REBECCA, appointed Assistant Physican at the Northern Indiana Hospital for Insane, Logansport, Ind.

PARSONS, DR. F. W., appointed Medical Interne at the Hudson River State Hospital, Poughkeepsie, N. Y.

PASHAYAN, DR. N. A., formerly Medical Interne in the St. Lawrence State Hospital, Ogdensburg, N. Y., promoted to be Junior Physician at the Long Island State Hospital, Kings Park, N. Y.

PATTERSON, DR. LOUISE, appointed Assistant Physician at the Long Island Home, Amityville, N. Y.

RUSSELL, DR. EDWARD W., appointed Clinical Assistant at the Hudson River State Hospital, Poughkeepsie, N. Y.

SANFORD, DR. WALTER H., formerly Medical Interne at the Matteawan State Hospital, Fishkill Landing, N. Y., promoted to be Junior Assistant Physician at the Long Island State Hospital, Kings Park, N. Y.

SELLERS, DR. FRANK E., appointed Assistant Physician and Pathologist at the Central State Hospital, Petersburg, Va.

SLOCUM, DR. CLARENCE J., resigned as Assistant Physician at the Utica State Hospital, Utica, N. Y.

STINSON, DR. H. C., appointed Superintendent of the State Lunatic Asylum, Little Rock, Ark.

SWEET, DR. CHARLES A., appointed Clinical Assistant at the Manhattan State Hospital, West, New York City.

SWIFT, DR. HENRY W., appointed Assistant Physician at the Danvers Insane Hospital, Hathorne, Mass.

TERFLINGER, DR. F. W., appointed Assistant Physician at the Northern Indiana Hospital for Insane, Logansport, Ind.

THOMAS, DR. GEORGE P., appointed Medical Interne at the Matteawan State Hospital, Fishkill Landing, N. Y.

TOWNSEND, DR. THEODORE I., Assistant Physician, transferred from the Long Island State Hospital, Kings Park, N. Y., to the Utica State Hospital, Utica, N. Y.

TURNER, DR. ADELAIDE, resigned as Assistant Physician at the Long Island Home, Amityville, N. Y.

VAN VRANKEN, DR. A. B., resigned as Clinical Assistant at the Manhattan State Hospital, East, New York City.

WALKER, DR. IRVING M., appointed Junior Physician at the Manhattan State Hospital, Central Islip, N. Y.

WEBB, DR. FRANK R., appointed Clinical Assistant at the Manhattan State Hospital, Central Islip, N. Y.

WHITNEY, DR. L. A., appointed Medical Interne at the Hudson River State Hospital, Poughkeepsie, N. Y.

WICKLIFFE, DR. J. W., resigned as Assistant Physician at the Manhattan State Hospital, East, New York City.

WILSON, DR. W. H., appointed Assistant Physician at the West Virginia Asylum for Incurables, Huntington, W. Va.

YOUNG, DR. J. E., resigned as Medical Interne at the Manhattan State Hospital, East, New York City.

YOUNG, DR. W. H., resigned as Medical Interne at the Manhattan State Hospital, East, New York City.